PARTE I

TABELAS

DE

NAVEGAÇÃO ESTIMADA E COSTEIRA

ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap	
D	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap
0	0.0	0.0	**50**	50.0	0.9	**100**	100.0	1.7	**150**	150.0	2.6	**200**	200.0	3.5	**250**	250.0	4.4
1	1.0	0.0	**1**	51.0	0.9	**1**	101.0	1.8	**1**	151.0	2.6	**1**	201.0	3.5	**1**	251.0	4.4
2	2.0	0.0	**2**	52.0	0.9	**2**	102.0	1.8	**2**	152.0	2.7	**2**	202.0	3.5	**2**	252.0	4.4
3	3.0	0.1	**3**	53.0	0.9	**3**	103.0	1.8	**3**	153.0	2.7	**3**	203.0	3.5	**3**	253.0	4.4
4	4.0	0.1	**4**	54.0	0.9	**4**	104.0	1.8	**4**	154.0	2.7	**4**	204.0	3.6	**4**	254.0	4.4
5	5.0	0.1	**5**	55.0	1.0	**5**	105.0	1.8	**5**	155.0	2.7	**5**	205.0	3.6	**5**	255.0	4.5
6	6.0	0.1	**6**	56.0	1.0	**6**	106.0	1.8	**6**	156.0	2.7	**6**	206.0	3.6	**6**	256.0	4.5
7	7.0	0.1	**7**	57.0	1.0	**7**	107.0	1.9	**7**	157.0	2.7	**7**	207.0	3.6	**7**	257.0	4.5
8	8.0	0.1	**8**	58.0	1.0	**8**	108.0	1.9	**8**	158.0	2.8	**8**	208.0	3.6	**8**	258.0	4.5
9	9.0	0.2	**9**	59.0	1.0	**9**	109.0	1.9	**9**	159.0	2.8	**9**	209.0	3.6	**9**	259.0	4.5
10	10.0	0.2	**60**	60.0	1.0	**110**	110.0	1.9	**160**	160.0	2.8	**210**	210.0	3.7	**260**	260.0	4.5
1	11.0	0.2	**1**	61.0	1.1	**1**	111.0	1.9	**1**	161.0	2.8	**1**	211.0	3.7	**1**	261.0	4.6
2	12.0	0.2	**2**	62.0	1.1	**2**	112.0	2.0	**2**	162.0	2.8	**2**	212.0	3.7	**2**	262.0	4.6
3	13.0	0.2	**3**	63.0	1.1	**3**	113.0	2.0	**3**	163.0	2.8	**3**	213.0	3.7	**3**	263.0	4.6
4	14.0	0.2	**4**	64.0	1.1	**4**	114.0	2.0	**4**	164.0	2.9	**4**	214.0	3.7	**4**	264.0	4.6
5	15.0	0.3	**5**	65.0	1.1	**5**	115.0	2.0	**5**	165.0	2.9	**5**	215.0	3.8	**5**	265.0	4.6
6	16.0	0.3	**6**	66.0	1.2	**6**	116.0	2.0	**6**	166.0	2.9	**6**	216.0	3.8	**6**	266.0	4.6
7	17.0	0.3	**7**	67.0	1.2	**7**	117.0	2.0	**7**	167.0	2.9	**7**	217.0	3.8	**7**	267.0	4.7
8	18.0	0.3	**8**	68.0	1.2	**8**	118.0	2.1	**8**	168.0	2.9	**8**	218.0	3.8	**8**	268.0	4.7
9	19.0	0.3	**9**	69.0	1.2	**9**	119.0	2.1	**9**	169.0	2.9	**9**	219.0	3.8	**9**	269.0	4.7
20	20.0	0.3	**70**	70.0	1.2	**120**	120.0	2.1	**170**	170.0	3.0	**220**	220.0	3.8	**270**	270.0	4.7
1	21.0	0.4	**1**	71.0	1.2	**1**	121.0	2.1	**1**	171.0	3.0	**1**	221.0	3.9	**1**	271.0	4.7
2	22.0	0.4	**2**	72.0	1.3	**2**	122.0	2.1	**2**	172.0	3.0	**2**	222.0	3.9	**2**	272.0	4.7
3	23.0	0.4	**3**	73.0	1.3	**3**	123.0	2.1	**3**	173.0	3.0	**3**	223.0	3.9	**3**	273.0	4.8
4	24.0	0.4	**4**	74.0	1.3	**4**	124.0	2.2	**4**	174.0	3.0	**4**	224.0	3.9	**4**	274.0	4.8
5	25.0	0.4	**5**	75.0	1.3	**5**	125.0	2.2	**5**	175.0	3.1	**5**	225.0	3.9	**5**	275.0	4.8
6	26.0	0.5	**6**	76.0	1.3	**6**	126.0	2.2	**6**	176.0	3.1	**6**	226.0	3.9	**6**	276.0	4.8
7	27.0	0.5	**7**	77.0	1.3	**7**	127.0	2.2	**7**	177.0	3.1	**7**	227.0	4.0	**7**	277.0	4.8
8	28.0	0.5	**8**	78.0	1.4	**8**	128.0	2.2	**8**	178.0	3.1	**8**	228.0	4.0	**8**	278.0	4.9
9	29.0	0.5	**9**	79.0	1.4	**9**	129.0	2.3	**9**	179.0	3.1	**9**	229.0	4.0	**9**	279.0	4.9
30	30.0	0.5	**80**	80.0	1.4	**130**	130.0	2.3	**180**	180.0	3.1	**230**	230.0	4.0	**280**	280.0	4.9
1	31.0	0.5	**1**	81.0	1.4	**1**	131.0	2.3	**1**	181.0	3.2	**1**	231.0	4.0	**1**	281.0	4.9
2	32.0	0.6	**2**	82.0	1.4	**2**	132.0	2.3	**2**	182.0	3.2	**2**	232.0	4.0	**2**	282.0	4.9
3	33.0	0.6	**3**	83.0	1.4	**3**	133.0	2.3	**3**	183.0	3.2	**3**	233.0	4.1	**3**	283.0	4.9
4	34.0	0.6	**4**	84.0	1.5	**4**	134.0	2.3	**4**	184.0	3.2	**4**	234.0	4.1	**4**	284.0	5.0
5	35.0	0.6	**5**	85.0	1.5	**5**	135.0	2.4	**5**	185.0	3.2	**5**	235.0	4.1	**5**	285.0	5.0
6	36.0	0.6	**6**	86.0	1.5	**6**	136.0	2.4	**6**	186.0	3.2	**6**	236.0	4.1	**6**	286.0	5.0
7	37.0	0.6	**7**	87.0	1.5	**7**	137.0	2.4	**7**	187.0	3.3	**7**	237.0	4.1	**7**	287.0	5.0
8	38.0	0.7	**8**	88.0	1.5	**8**	138.0	2.4	**8**	188.0	3.3	**8**	238.0	4.2	**8**	288.0	5.0
9	39.0	0.7	**9**	89.0	1.6	**9**	139.0	2.4	**9**	189.0	3.3	**9**	239.0	4.2	**9**	289.0	5.0
40	40.0	0.7	**90**	90.0	1.6	**140**	140.0	2.4	**190**	190.0	3.3	**240**	240.0	4.2	**290**	290.0	5.1
1	41.0	0.7	**1**	91.0	1.6	**1**	141.0	2.5	**1**	191.0	3.3	**1**	241.0	4.2	**1**	291.0	5.1
2	42.0	0.7	**2**	92.0	1.6	**2**	142.0	2.5	**2**	192.0	3.4	**2**	242.0	4.2	**2**	292.0	5.1
3	43.0	0.8	**3**	93.0	1.6	**3**	143.0	2.5	**3**	193.0	3.4	**3**	243.0	4.2	**3**	293.0	5.1
4	44.0	0.8	**4**	94.0	1.6	**4**	144.0	2.5	**4**	194.0	3.4	**4**	244.0	4.3	**4**	294.0	5.1
5	45.0	0.8	**5**	95.0	1.7	**5**	145.0	2.5	**5**	195.0	3.4	**5**	245.0	4.3	**5**	295.0	5.1
6	46.0	0.8	**6**	96.0	1.7	**6**	146.0	2.5	**6**	196.0	3.4	**6**	246.0	4.3	**6**	296.0	5.2
7	47.0	0.8	**7**	97.0	1.7	**7**	147.0	2.6	**7**	197.0	3.4	**7**	247.0	4.3	**7**	297.0	5.2
8	48.0	0.8	**8**	98.0	1.7	**8**	148.0	2.6	**8**	198.0	3.5	**8**	248.0	4.3	**8**	298.0	5.2
9	49.0	0.9	**9**	99.0	1.7	**9**	149.0	2.6	**9**	199.0	3.5	**9**	249.0	4.3	**9**	299.0	5.2
D	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ
ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap

ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap	
D	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap
300	300.0	5.2	**350**	349.9	6.1	**400**	399.9	7.0	**450**	449.9	7.9	**500**	499.9	8.7	**550**	549.9	9.6
1	301.0	5.3	**1**	350.9	6.1	**1**	400.9	7.0	**1**	450.9	7.9	**1**	500.9	8.7	**1**	550.9	9.6
2	302.0	5.3	**2**	351.9	6.1	**2**	401.9	7.0	**2**	451.9	7.9	**2**	501.9	8.8	**2**	551.9	9.6
3	303.0	5.3	**3**	352.9	6.2	**3**	402.9	7.0	**3**	452.9	7.9	**3**	502.9	8.8	**3**	552.9	9.7
4	304.0	5.3	**4**	353.9	6.2	**4**	403.9	7.1	**4**	453.9	7.9	**4**	503.9	8.8	**4**	553.9	9.7
5	305.0	5.3	**5**	354.9	6.2	**5**	404.9	7.1	**5**	454.9	7.9	**5**	504.9	8.8	**5**	554.9	9.7
6	306.0	5.3	**6**	355.9	6.2	**6**	405.9	7.1	**6**	455.9	8.0	**6**	505.9	8.8	**6**	555.9	9.7
7	307.0	5.4	**7**	356.9	6.2	**7**	406.9	7.1	**7**	456.9	8.0	**7**	506.9	8.8	**7**	556.9	9.7
8	308.0	5.4	**8**	357.9	6.2	**8**	407.9	7.1	**8**	457.9	8.0	**8**	507.9	8.9	**8**	557.9	9.7
9	309.0	5.4	**9**	358.9	6.3	**9**	408.9	7.1	**9**	458.9	8.0	**9**	508.9	8.9	**9**	558.9	9.8
310	310.0	5.4	**360**	359.9	6.3	**410**	409.9	7.2	**460**	459.9	8.0	**510**	509.9	8.9	**560**	559.9	9.8
1	311.0	5.4	**1**	360.9	6.3	**1**	410.9	7.2	**1**	460.9	8.0	**1**	510.9	8.9	**1**	560.9	9.8
2	312.0	5.4	**2**	361.9	6.3	**2**	411.9	7.2	**2**	461.9	8.1	**2**	511.9	8.9	**2**	561.9	9.8
3	313.0	5.5	**3**	362.9	6.3	**3**	412.9	7.2	**3**	462.9	8.1	**3**	512.9	9.0	**3**	562.9	9.8
4	314.0	5.5	**4**	363.9	6.4	**4**	413.9	7.2	**4**	463.9	8.1	**4**	513.9	9.0	**4**	563.9	9.8
5	315.0	5.5	**5**	364.9	6.4	**5**	414.9	7.2	**5**	464.9	8.1	**5**	514.9	9.0	**5**	564.9	9.9
6	316.0	5.5	**6**	365.9	6.4	**6**	415.9	7.3	**6**	465.9	8.1	**6**	515.9	9.0	**6**	565.9	9.9
7	317.0	5.5	**7**	366.9	6.4	**7**	416.9	7.3	**7**	466.9	8.2	**7**	516.9	9.0	**7**	566.9	9.9
8	318.0	5.5	**8**	367.9	6.4	**8**	417.9	7.3	**8**	467.9	8.2	**8**	517.9	9.0	**8**	567.9	9.9
9	319.0	5.6	**9**	368.9	6.4	**9**	418.9	7.3	**9**	468.9	8.2	**9**	518.9	9.1	**9**	568.9	9.9
320	320.0	5.6	**370**	369.9	6.5	**420**	419.9	7.3	**470**	469.9	8.2	**520**	519.9	9.1	**570**	569.9	9.9
1	321.0	5.6	**1**	370.9	6.5	**1**	420.9	7.3	**1**	470.9	8.2	**1**	520.9	9.1	**1**	570.9	10.0
2	322.0	5.6	**2**	371.9	6.5	**2**	421.9	7.4	**2**	471.9	8.2	**2**	521.9	9.1	**2**	571.9	10.0
3	323.0	5.6	**3**	372.9	6.5	**3**	422.9	7.4	**3**	472.9	8.3	**3**	522.9	9.1	**3**	572.9	10.0
4	324.0	5.7	**4**	373.9	6.5	**4**	423.9	7.4	**4**	473.9	8.3	**4**	523.9	9.1	**4**	573.9	10.0
5	325.0	5.7	**5**	374.9	6.5	**5**	424.9	7.4	**5**	474.9	8.3	**5**	524.9	9.2	**5**	574.9	10.0
6	326.0	5.7	**6**	375.9	6.6	**6**	425.9	7.4	**6**	475.9	8.3	**6**	525.9	9.2	**6**	575.9	10.1
7	327.0	5.7	**7**	376.9	6.6	**7**	426.9	7.5	**7**	476.9	8.3	**7**	526.9	9.2	**7**	576.9	10.1
8	327.9	5.7	**8**	377.9	6.6	**8**	427.9	7.5	**8**	477.9	8.3	**8**	527.9	9.2	**8**	577.9	10.1
9	328.9	5.7	**9**	378.9	6.6	**9**	428.9	7.5	**9**	478.9	8.4	**9**	528.9	9.2	**9**	578.9	10.1
330	329.9	5.8	**380**	379.9	6.6	**430**	429.9	7.5	**480**	479.9	8.4	**530**	529.9	9.2	**580**	579.9	10.1
1	330.9	5.8	**1**	380.9	6.6	**1**	430.9	7.5	**1**	480.9	8.4	**1**	530.9	9.3	**1**	580.9	10.1
2	331.9	5.8	**2**	381.9	6.7	**2**	431.9	7.5	**2**	481.9	8.4	**2**	531.9	9.3	**2**	581.9	10.2
3	332.9	5.8	**3**	382.9	6.7	**3**	432.9	7.6	**3**	482.9	8.4	**3**	532.9	9.3	**3**	582.9	10.2
4	333.9	5.8	**4**	383.9	6.7	**4**	433.9	7.6	**4**	483.9	8.4	**4**	533.9	9.3	**4**	583.9	10.2
5	334.9	5.8	**5**	384.9	6.7	**5**	434.9	7.6	**5**	484.9	8.5	**5**	534.9	9.3	**5**	584.9	10.2
6	335.9	5.9	**6**	385.9	6.7	**6**	435.9	7.6	**6**	485.9	8.5	**6**	535.9	9.4	**6**	585.9	10.2
7	336.9	5.9	**7**	386.9	6.8	**7**	436.9	7.6	**7**	486.9	8.5	**7**	536.9	9.4	**7**	586.9	10.2
8	337.9	5.9	**8**	387.9	6.8	**8**	437.9	7.6	**8**	487.9	8.5	**8**	537.9	9.4	**8**	587.9	10.3
9	338.9	5.9	**9**	388.9	6.8	**9**	438.9	7.7	**9**	488.9	8.5	**9**	538.9	9.4	**9**	588.9	10.3
340	339.9	5.9	**390**	389.9	6.8	**440**	439.9	7.7	**490**	489.9	8.6	**540**	539.9	9.4	**590**	589.9	10.3
1	340.9	6.0	**1**	390.9	6.8	**1**	440.9	7.7	**1**	490.9	8.6	**1**	540.9	9.4	**1**	590.9	10.3
2	341.9	6.0	**2**	391.9	6.8	**2**	441.9	7.7	**2**	491.9	8.6	**2**	541.9	9.5	**2**	591.9	10.3
3	342.9	6.0	**3**	392.9	6.9	**3**	442.9	7.7	**3**	492.9	8.6	**3**	542.9	9.5	**3**	592.9	10.3
4	343.9	6.0	**4**	393.9	6.9	**4**	443.9	7.7	**4**	493.9	8.6	**4**	543.9	9.5	**4**	593.9	10.4
5	344.9	6.0	**5**	394.9	6.9	**5**	444.9	7.8	**5**	494.9	8.6	**5**	544.9	9.5	**5**	594.9	10.4
6	345.9	6.0	**6**	395.9	6.9	**6**	445.9	7.8	**6**	495.9	8.7	**6**	545.9	9.5	**6**	595.9	10.4
7	346.9	6.1	**7**	396.9	6.9	**7**	446.9	7.8	**7**	496.9	8.7	**7**	546.9	9.5	**7**	596.9	10.4
8	347.9	6.1	**8**	397.9	6.9	**8**	447.9	7.8	**8**	497.9	8.7	**8**	547.9	9.6	**8**	597.9	10.4
9	348.9	6.1	**9**	398.9	7.0	**9**	448.9	7.8	**9**	498.9	8.7	**9**	548.9	9.6	**9**	598.9	10.5
D	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ
ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap

ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap	
D	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap
0	0.0	0.0	**50**	50.0	1.7	**100**	99.9	3.5	**150**	149.9	5.2	**200**	199.9	7.0	**250**	249.8	8.7
1	1.0	0.0	**1**	51.0	1.8	**1**	100.9	3.5	**1**	150.9	5.3	**1**	200.9	7.0	**1**	250.8	8.8
2	2.0	0.1	**2**	52.0	1.8	**2**	101.9	3.6	**2**	151.9	5.3	**2**	201.9	7.0	**2**	251.8	8.8
3	3.0	0.1	**3**	53.0	1.8	**3**	102.9	3.6	**3**	152.9	5.3	**3**	202.9	7.1	**3**	252.8	8.8
4	4.0	0.1	**4**	54.0	1.9	**4**	103.9	3.6	**4**	153.9	5.4	**4**	203.9	7.1	**4**	253.8	8.9
5	5.0	0.2	**5**	55.0	1.9	**5**	104.9	3.7	**5**	154.9	5.4	**5**	204.9	7.2	**5**	254.8	8.9
6	6.0	0.2	**6**	56.0	2.0	**6**	105.9	3.7	**6**	155.9	5.4	**6**	205.9	7.2	**6**	255.8	8.9
7	7.0	0.2	**7**	57.0	2.0	**7**	106.9	3.7	**7**	156.9	5.5	**7**	206.9	7.2	**7**	256.8	9.0
8	8.0	0.3	**8**	58.0	2.0	**8**	107.9	3.8	**8**	157.9	5.5	**8**	207.9	7.3	**8**	257.8	9.0
9	9.0	0.3	**9**	59.0	2.1	**9**	108.9	3.8	**9**	158.9	5.5	**9**	208.9	7.3	**9**	258.8	9.0
10	10.0	0.3	**60**	60.0	2.1	**110**	109.9	3.8	**160**	159.9	5.6	**210**	209.9	7.3	**260**	259.8	9.1
1	11.0	0.4	**1**	61.0	2.1	**1**	110.9	3.9	**1**	160.9	5.6	**1**	210.9	7.4	**1**	260.8	9.1
2	12.0	0.4	**2**	62.0	2.2	**2**	111.9	3.9	**2**	161.9	5.7	**2**	211.9	7.4	**2**	261.8	9.1
3	13.0	0.5	**3**	63.0	2.2	**3**	112.9	3.9	**3**	162.9	5.7	**3**	212.9	7.4	**3**	262.8	9.2
4	14.0	0.5	**4**	64.0	2.2	**4**	113.9	4.0	**4**	163.9	5.7	**4**	213.9	7.5	**4**	263.8	9.2
5	15.0	0.5	**5**	65.0	2.3	**5**	114.9	4.0	**5**	164.9	5.8	**5**	214.9	7.5	**5**	264.8	9.2
6	16.0	0.6	**6**	66.0	2.3	**6**	115.9	4.0	**6**	165.9	5.8	**6**	215.9	7.5	**6**	265.8	9.3
7	17.0	0.6	**7**	67.0	2.3	**7**	116.9	4.1	**7**	166.9	5.8	**7**	216.9	7.6	**7**	266.8	9.3
8	18.0	0.6	**8**	68.0	2.4	**8**	117.9	4.1	**8**	167.9	5.9	**8**	217.9	7.6	**8**	267.8	9.4
9	19.0	0.7	**9**	69.0	2.4	**9**	118.9	4.2	**9**	168.9	5.9	**9**	218.9	7.6	**9**	268.8	9.4
20	20.0	0.7	**70**	70.0	2.4	**120**	119.9	4.2	**170**	169.9	5.9	**220**	219.9	7.7	**270**	269.8	9.4
1	21.0	0.7	**1**	71.0	2.5	**1**	120.9	4.2	**1**	170.9	6.0	**1**	220.9	7.7	**1**	270.8	9.5
2	22.0	0.8	**2**	72.0	2.5	**2**	121.9	4.3	**2**	171.9	6.0	**2**	221.9	7.7	**2**	271.8	9.5
3	23.0	0.8	**3**	73.0	2.5	**3**	122.9	4.3	**3**	172.9	6.0	**3**	222.9	7.8	**3**	272.8	9.5
4	24.0	0.8	**4**	74.0	2.6	**4**	123.9	4.3	**4**	173.9	6.1	**4**	223.9	7.8	**4**	273.8	9.6
5	25.0	0.9	**5**	75.0	2.6	**5**	124.9	4.4	**5**	174.9	6.1	**5**	224.9	7.9	**5**	274.8	9.6
6	26.0	0.9	**6**	76.0	2.7	**6**	125.9	4.4	**6**	175.9	6.1	**6**	225.9	7.9	**6**	275.8	9.6
7	27.0	0.9	**7**	77.0	2.7	**7**	126.9	4.4	**7**	176.9	6.2	**7**	226.9	7.9	**7**	276.8	9.7
8	28.0	1.0	**8**	78.0	2.7	**8**	127.9	4.5	**8**	177.9	6.2	**8**	227.9	8.0	**8**	277.8	9.7
9	29.0	1.0	**9**	79.0	2.8	**9**	128.9	4.5	**9**	178.9	6.2	**9**	228.9	8.0	**9**	278.8	9.7
30	30.0	1.0	**80**	80.0	2.8	**130**	129.9	4.5	**180**	179.9	6.3	**230**	229.9	8.0	**280**	279.8	9.8
1	31.0	1.1	**1**	81.0	2.8	**1**	130.9	4.6	**1**	180.9	6.3	**1**	230.9	8.1	**1**	280.8	9.8
2	32.0	1.1	**2**	82.0	2.9	**2**	131.9	4.6	**2**	181.9	6.4	**2**	231.9	8.1	**2**	281.8	9.8
3	33.0	1.2	**3**	82.9	2.9	**3**	132.9	4.6	**3**	182.9	6.4	**3**	232.9	8.1	**3**	282.8	9.9
4	34.0	1.2	**4**	83.9	2.9	**4**	133.9	4.7	**4**	183.9	6.4	**4**	233.9	8.2	**4**	283.8	9.9
5	35.0	1.2	**5**	84.9	3.0	**5**	134.9	4.7	**5**	184.9	6.5	**5**	234.9	8.2	**5**	284.8	9.9
6	36.0	1.3	**6**	85.9	3.0	**6**	135.9	4.7	**6**	185.9	6.5	**6**	235.9	8.2	**6**	285.8	10.0
7	37.0	1.3	**7**	86.9	3.0	**7**	136.9	4.8	**7**	186.9	6.5	**7**	236.9	8.3	**7**	286.8	10.0
8	38.0	1.3	**8**	87.9	3.1	**8**	137.9	4.8	**8**	187.9	6.6	**8**	237.9	8.3	**8**	287.8	10.1
9	39.0	1.4	**9**	88.9	3.1	**9**	138.9	4.9	**9**	188.9	6.6	**9**	238.9	8.3	**9**	288.8	10.1
40	40.0	1.4	**90**	89.9	3.1	**140**	139.9	4.9	**190**	189.9	6.6	**240**	239.9	8.4	**290**	289.8	10.1
1	41.0	1.4	**1**	90.9	3.2	**1**	140.9	4.9	**1**	190.9	6.7	**1**	240.9	8.4	**1**	290.8	10.2
2	42.0	1.5	**2**	91.9	3.2	**2**	141.9	5.0	**2**	191.9	6.7	**2**	241.9	8.4	**2**	291.8	10.2
3	43.0	1.5	**3**	92.9	3.2	**3**	142.9	5.0	**3**	192.9	6.7	**3**	242.9	8.5	**3**	292.8	10.2
4	44.0	1.5	**4**	93.9	3.3	**4**	143.9	5.0	**4**	193.9	6.8	**4**	243.9	8.5	**4**	293.8	10.3
5	45.0	1.6	**5**	94.9	3.3	**5**	144.9	5.1	**5**	194.9	6.8	**5**	244.9	8.6	**5**	294.8	10.3
6	46.0	1.6	**6**	95.9	3.4	**6**	145.9	5.1	**6**	195.9	6.8	**6**	245.9	8.6	**6**	295.8	10.3
7	47.0	1.6	**7**	96.9	3.4	**7**	146.9	5.1	**7**	196.9	6.9	**7**	246.8	8.6	**7**	296.8	10.4
8	48.0	1.7	**8**	97.9	3.4	**8**	147.9	5.2	**8**	197.9	6.9	**8**	247.8	8.7	**8**	297.8	10.4
9	49.0	1.7	**9**	98.9	3.5	**9**	148.9	5.2	**9**	198.9	6.9	**9**	248.8	8.7	**9**	298.8	10.4
D	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ
ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap

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ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap	
D	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap
300	299.8	10.5	**350**	349.8	12.2	**400**	399.8	14.0	**450**	449.7	15.7	**500**	499.7	17.4	**550**	549.7	19.2
1	300.8	10.5	**1**	350.8	12.2	**1**	400.8	14.0	**1**	450.7	15.7	**1**	500.7	17.5	**1**	550.7	19.2
2	301.8	10.5	**2**	351.8	12.3	**2**	401.8	14.0	**2**	451.7	15.8	**2**	501.7	17.5	**2**	551.7	19.3
3	302.8	10.6	**3**	352.8	12.3	**3**	402.8	14.1	**3**	452.7	15.8	**3**	502.7	17.6	**3**	552.7	19.3
4	303.8	10.6	**4**	353.8	12.4	**4**	403.8	14.1	**4**	453.7	15.8	**4**	503.7	17.6	**4**	553.7	19.3
5	304.8	10.6	**5**	354.8	12.4	**5**	404.8	14.1	**5**	454.7	15.9	**5**	504.7	17.6	**5**	554.7	19.4
6	305.8	10.7	**6**	355.8	12.4	**6**	405.8	14.2	**6**	455.7	15.9	**6**	505.7	17.7	**6**	555.7	19.4
7	306.8	10.7	**7**	356.8	12.5	**7**	406.8	14.2	**7**	456.7	15.9	**7**	506.7	17.7	**7**	556.7	19.4
8	307.8	10.7	**8**	357.8	12.5	**8**	407.8	14.2	**8**	457.7	16.0	**8**	507.7	17.7	**8**	557.7	19.5
9	308.8	10.8	**9**	358.8	12.5	**9**	408.8	14.3	**9**	458.7	16.0	**9**	508.7	17.8	**9**	558.7	19.5
310	309.8	10.8	**360**	359.8	12.6	**410**	409.8	14.3	**460**	459.7	16.1	**510**	509.7	17.8	**560**	559.7	19.5
1	310.8	10.9	**1**	360.8	12.6	**1**	410.7	14.3	**1**	460.7	16.1	**1**	510.7	17.8	**1**	560.7	19.6
2	311.8	10.9	**2**	361.8	12.6	**2**	411.7	14.4	**2**	461.7	16.1	**2**	511.7	17.9	**2**	561.7	19.6
3	312.8	10.9	**3**	362.8	12.7	**3**	412.7	14.4	**3**	462.7	16.2	**3**	512.7	17.9	**3**	562.7	19.6
4	313.8	11.0	**4**	363.8	12.7	**4**	413.7	14.4	**4**	463.7	16.2	**4**	513.7	17.9	**4**	563.7	19.7
5	314.8	11.0	**5**	364.8	12.7	**5**	414.7	14.5	**5**	464.7	16.2	**5**	514.7	18.0	**5**	564.7	19.7
6	315.8	11.0	**6**	365.8	12.8	**6**	415.7	14.5	**6**	465.7	16.3	**6**	515.7	18.0	**6**	565.7	19.8
7	316.8	11.1	**7**	366.8	12.8	**7**	416.7	14.6	**7**	466.7	16.3	**7**	516.7	18.0	**7**	566.7	19.8
8	317.8	11.1	**8**	367.8	12.8	**8**	417.7	14.6	**8**	467.7	16.3	**8**	517.7	18.1	**8**	567.7	19.8
9	318.8	11.1	**9**	368.8	12.9	**9**	418.7	14.6	**9**	468.7	16.4	**9**	518.7	18.1	**9**	568.7	19.9
320	319.8	11.2	**370**	369.8	12.9	**420**	419.7	14.7	**470**	469.7	16.4	**520**	519.7	18.1	**570**	569.7	19.9
1	320.8	11.2	**1**	370.8	12.9	**1**	420.7	14.7	**1**	470.7	16.4	**1**	520.7	18.2	**1**	570.7	19.9
2	321.8	11.2	**2**	371.8	13.0	**2**	421.7	14.7	**2**	471.7	16.5	**2**	521.7	18.2	**2**	571.7	20.0
3	322.8	11.3	**3**	372.8	13.0	**3**	422.7	14.8	**3**	472.7	16.5	**3**	522.7	18.3	**3**	572.7	20.0
4	323.8	11.3	**4**	373.8	13.1	**4**	423.7	14.8	**4**	473.7	16.5	**4**	523.7	18.3	**4**	573.7	20.0
5	324.8	11.3	**5**	374.8	13.1	**5**	424.7	14.8	**5**	474.7	16.6	**5**	524.7	18.3	**5**	574.6	20.1
6	325.8	11.4	**6**	375.8	13.1	**6**	425.7	14.9	**6**	475.7	16.6	**6**	525.7	18.4	**6**	575.6	20.1
7	326.8	11.4	**7**	376.8	13.2	**7**	426.7	14.9	**7**	476.7	16.6	**7**	526.7	18.4	**7**	576.6	20.1
8	327.8	11.4	**8**	377.8	13.2	**8**	427.7	14.9	**8**	477.7	16.7	**8**	527.7	18.4	**8**	577.6	20.2
9	328.8	11.5	**9**	378.8	13.2	**9**	428.7	15.0	**9**	478.7	16.7	**9**	528.7	18.5	**9**	578.6	20.2
330	329.8	11.5	**380**	379.8	13.3	**430**	429.7	15.0	**480**	479.7	16.8	**530**	529.7	18.5	**580**	579.6	20.2
1	330.8	11.6	**1**	380.8	13.3	**1**	430.7	15.0	**1**	480.7	16.8	**1**	530.7	18.5	**1**	580.6	20.3
2	331.8	11.6	**2**	381.8	13.3	**2**	431.7	15.1	**2**	481.7	16.8	**2**	531.7	18.6	**2**	581.6	20.3
3	332.8	11.6	**3**	382.8	13.4	**3**	432.7	15.1	**3**	482.7	16.9	**3**	532.7	18.6	**3**	582.6	20.3
4	333.8	11.7	**4**	383.8	13.4	**4**	433.7	15.1	**4**	483.7	16.9	**4**	533.7	18.6	**4**	583.6	20.4
5	334.8	11.7	**5**	384.8	13.4	**5**	434.7	15.2	**5**	484.7	16.9	**5**	534.7	18.7	**5**	584.6	20.4
6	335.8	11.7	**6**	385.8	13.5	**6**	435.7	15.2	**6**	485.7	17.0	**6**	535.7	18.7	**6**	585.6	20.5
7	336.8	11.8	**7**	386.8	13.5	**7**	436.7	15.3	**7**	486.7	17.0	**7**	536.7	18.7	**7**	586.6	20.5
8	337.8	11.8	**8**	387.8	13.5	**8**	437.7	15.3	**8**	487.7	17.0	**8**	537.7	18.8	**8**	587.6	20.5
9	338.8	11.8	**9**	388.8	13.6	**9**	438.7	15.3	**9**	488.7	17.1	**9**	538.7	18.8	**9**	588.6	20.6
340	339.8	11.9	**390**	389.8	13.6	**440**	439.7	15.4	**490**	489.7	17.1	**540**	539.7	18.8	**590**	589.6	20.6
1	340.8	11.9	**1**	390.8	13.6	**1**	440.7	15.4	**1**	490.7	17.1	**1**	540.7	18.9	**1**	590.6	20.6
2	341.8	11.9	**2**	391.8	13.7	**2**	441.7	15.4	**2**	491.7	17.2	**2**	541.7	18.9	**2**	591.6	20.7
3	342.8	12.0	**3**	392.8	13.7	**3**	442.7	15.5	**3**	492.7	17.2	**3**	542.7	19.0	**3**	592.6	20.7
4	343.8	12.0	**4**	393.8	13.8	**4**	443.7	15.5	**4**	493.7	17.2	**4**	543.7	19.0	**4**	593.6	20.7
5	344.8	12.0	**5**	394.8	13.8	**5**	444.7	15.5	**5**	494.7	17.3	**5**	544.7	19.0	**5**	594.6	20.8
6	345.8	12.1	**6**	395.8	13.8	**6**	445.7	15.6	**6**	495.7	17.3	**6**	545.7	19.1	**6**	595.6	20.8
7	346.8	12.1	**7**	396.8	13.9	**7**	446.7	15.6	**7**	496.7	17.3	**7**	546.7	19.1	**7**	596.6	20.8
8	347.8	12.1	**8**	397.8	13.9	**8**	447.7	15.6	**8**	497.7	17.4	**8**	547.7	19.1	**8**	597.6	20.9
9	348.8	12.2	**9**	398.8	13.9	**9**	448.7	15.7	**9**	498.7	17.4	**9**	548.7	19.2	**9**	598.6	20.9
D	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ
ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap

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ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap	
D	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap
0	0.0	0.0	**50**	49.9	2.6	**100**	99.9	5.2	**150**	149.8	7.9	**200**	199.7	10.5	**250**	249.7	13.1
1	1.0	0.1	**1**	50.9	2.7	**1**	100.9	5.3	**1**	150.8	7.9	**1**	200.7	10.5	**1**	250.7	13.1
2	2.0	0.1	**2**	51.9	2.7	**2**	101.9	5.3	**2**	151.8	8.0	**2**	201.7	10.6	**2**	251.7	13.2
3	3.0	0.2	**3**	52.9	2.8	**3**	102.9	5.4	**3**	152.8	8.0	**3**	202.7	10.6	**3**	252.7	13.2
4	4.0	0.2	**4**	53.9	2.8	**4**	103.9	5.4	**4**	153.8	8.1	**4**	203.7	10.7	**4**	253.7	13.3
5	5.0	0.3	**5**	54.9	2.9	**5**	104.9	5.5	**5**	154.8	8.1	**5**	204.7	10.7	**5**	254.7	13.3
6	6.0	0.3	**6**	55.9	2.9	**6**	105.9	5.5	**6**	155.8	8.2	**6**	205.7	10.8	**6**	255.6	13.4
7	7.0	0.4	**7**	56.9	3.0	**7**	106.9	5.6	**7**	156.8	8.2	**7**	206.7	10.8	**7**	256.6	13.5
8	8.0	0.4	**8**	57.9	3.0	**8**	107.9	5.7	**8**	157.8	8.3	**8**	207.7	10.9	**8**	257.6	13.5
9	9.0	0.5	**9**	58.9	3.1	**9**	108.9	5.7	**9**	158.8	8.3	**9**	208.7	10.9	**9**	258.6	13.6
10	10.0	0.5	**60**	59.9	3.1	**110**	109.8	5.8	**160**	159.8	8.4	**210**	209.7	11.0	**260**	259.6	13.6
1	11.0	0.6	**1**	60.9	3.2	**1**	110.8	5.8	**1**	160.8	8.4	**1**	210.7	11.0	**1**	260.6	13.7
2	12.0	0.6	**2**	61.9	3.2	**2**	111.8	5.9	**2**	161.8	8.5	**2**	211.7	11.1	**2**	261.6	13.7
3	13.0	0.7	**3**	62.9	3.3	**3**	112.8	5.9	**3**	162.8	8.5	**3**	212.7	11.1	**3**	262.6	13.8
4	14.0	0.7	**4**	63.9	3.3	**4**	113.8	6.0	**4**	163.8	8.6	**4**	213.7	11.2	**4**	263.6	13.8
5	15.0	0.8	**5**	64.9	3.4	**5**	114.8	6.0	**5**	164.8	8.6	**5**	214.7	11.3	**5**	264.6	13.9
6	16.0	0.8	**6**	65.9	3.5	**6**	115.8	6.1	**6**	165.8	8.7	**6**	215.7	11.3	**6**	265.6	13.9
7	17.0	0.9	**7**	66.9	3.5	**7**	116.8	6.1	**7**	166.8	8.7	**7**	216.7	11.4	**7**	266.6	14.0
8	18.0	0.9	**8**	67.9	3.6	**8**	117.8	6.2	**8**	167.8	8.8	**8**	217.7	11.4	**8**	267.6	14.0
9	19.0	1.0	**9**	68.9	3.6	**9**	118.8	6.2	**9**	168.8	8.8	**9**	218.7	11.5	**9**	268.6	14.1
20	20.0	1.0	**70**	69.9	3.7	**120**	119.8	6.3	**170**	169.8	8.9	**220**	219.7	11.5	**270**	269.6	14.1
1	21.0	1.1	**1**	70.9	3.7	**1**	120.8	6.3	**1**	170.8	8.9	**1**	220.7	11.6	**1**	270.6	14.2
2	22.0	1.2	**2**	71.9	3.8	**2**	121.8	6.4	**2**	171.8	9.0	**2**	221.7	11.6	**2**	271.6	14.2
3	23.0	1.2	**3**	72.9	3.8	**3**	122.8	6.4	**3**	172.8	9.1	**3**	222.7	11.7	**3**	272.6	14.3
4	24.0	1.3	**4**	73.9	3.9	**4**	123.8	6.5	**4**	173.8	9.1	**4**	223.7	11.7	**4**	273.6	14.3
5	25.0	1.3	**5**	74.9	3.9	**5**	124.8	6.5	**5**	174.8	9.2	**5**	224.7	11.8	**5**	274.6	14.4
6	26.0	1.4	**6**	75.9	4.0	**6**	125.8	6.6	**6**	175.8	9.2	**6**	225.7	11.8	**6**	275.6	14.4
7	27.0	1.4	**7**	76.9	4.0	**7**	126.8	6.6	**7**	176.8	9.3	**7**	226.7	11.9	**7**	276.6	14.5
8	28.0	1.5	**8**	77.9	4.1	**8**	127.8	6.7	**8**	177.8	9.3	**8**	227.7	11.9	**8**	277.6	14.5
9	29.0	1.5	**9**	78.9	4.1	**9**	128.8	6.8	**9**	178.8	9.4	**9**	228.7	12.0	**9**	278.6	14.6
30	30.0	1.6	**80**	79.9	4.2	**130**	129.8	6.8	**180**	179.8	9.4	**230**	229.7	12.0	**280**	279.6	14.7
1	31.0	1.6	**1**	80.9	4.2	**1**	130.8	6.9	**1**	180.8	9.5	**1**	230.7	12.1	**1**	280.6	14.7
2	32.0	1.7	**2**	81.9	4.3	**2**	131.8	6.9	**2**	181.8	9.5	**2**	231.7	12.1	**2**	281.6	14.8
3	33.0	1.7	**3**	82.9	4.3	**3**	132.8	7.0	**3**	182.7	9.6	**3**	232.7	12.2	**3**	282.6	14.8
4	34.0	1.8	**4**	83.9	4.4	**4**	133.8	7.0	**4**	183.7	9.6	**4**	233.7	12.2	**4**	283.6	14.9
5	35.0	1.8	**5**	84.9	4.4	**5**	134.8	7.1	**5**	184.7	9.7	**5**	234.7	12.3	**5**	284.6	14.9
6	36.0	1.9	**6**	85.9	4.5	**6**	135.8	7.1	**6**	185.7	9.7	**6**	235.7	12.4	**6**	285.6	15.0
7	36.9	1.9	**7**	86.9	4.6	**7**	136.8	7.2	**7**	186.7	9.8	**7**	236.7	12.4	**7**	286.6	15.0
8	37.9	2.0	**8**	87.9	4.6	**8**	137.8	7.2	**8**	187.7	9.8	**8**	237.7	12.5	**8**	287.6	15.1
9	38.9	2.0	**9**	88.9	4.7	**9**	138.8	7.3	**9**	188.7	9.9	**9**	238.7	12.5	**9**	288.6	15.1
40	39.9	2.1	**90**	89.9	4.7	**140**	139.8	7.3	**190**	189.7	9.9	**240**	239.7	12.6	**290**	289.6	15.2
1	40.9	2.1	**1**	90.9	4.8	**1**	140.8	7.4	**1**	190.7	10.0	**1**	240.7	12.6	**1**	290.6	15.2
2	41.9	2.2	**2**	91.9	4.8	**2**	141.8	7.4	**2**	191.7	10.0	**2**	241.7	12.7	**2**	291.6	15.3
3	42.9	2.3	**3**	92.9	4.9	**3**	142.8	7.5	**3**	192.7	10.1	**3**	242.7	12.7	**3**	292.6	15.3
4	43.9	2.3	**4**	93.9	4.9	**4**	143.8	7.5	**4**	193.7	10.2	**4**	243.7	12.8	**4**	293.6	15.4
5	44.9	2.4	**5**	94.9	5.0	**5**	144.8	7.6	**5**	194.7	10.2	**5**	244.7	12.8	**5**	294.6	15.4
6	45.9	2.4	**6**	95.9	5.0	**6**	145.8	7.6	**6**	195.7	10.3	**6**	245.7	12.9	**6**	295.6	15.5
7	46.9	2.5	**7**	96.9	5.1	**7**	146.8	7.7	**7**	196.7	10.3	**7**	246.7	12.9	**7**	296.6	15.5
8	47.9	2.5	**8**	97.9	5.1	**8**	147.8	7.7	**8**	197.7	10.4	**8**	247.7	13.0	**8**	297.6	15.6
9	48.9	2.6	**9**	98.9	5.2	**9**	148.8	7.8	**9**	198.7	10.4	**9**	248.7	13.0	**9**	298.6	15.6
D	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ
ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap

ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap	
D	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap
300	299.6	15.7	**350**	349.5	18.3	**400**	399.5	20.9	**450**	449.4	23.6	**500**	499.3	26.2	**550**	549.2	28.8
1	300.6	15.8	**1**	350.5	18.4	**1**	400.5	21.0	**1**	450.4	23.6	**1**	500.3	26.2	**1**	550.2	28.8
2	301.6	15.8	**2**	351.5	18.4	**2**	401.4	21.0	**2**	451.4	23.7	**2**	501.3	26.3	**2**	551.2	28.9
3	302.6	15.9	**3**	352.5	18.5	**3**	402.4	21.1	**3**	452.4	23.7	**3**	502.3	26.3	**3**	552.2	28.9
4	303.6	15.9	**4**	353.5	18.5	**4**	403.4	21.1	**4**	453.4	23.8	**4**	503.3	26.4	**4**	553.2	29.0
5	304.6	16.0	**5**	354.5	18.6	**5**	404.4	21.2	**5**	454.4	23.8	**5**	504.3	26.4	**5**	554.2	29.0
6	305.6	16.0	**6**	355.5	18.6	**6**	405.4	21.2	**6**	455.4	23.9	**6**	505.3	26.5	**6**	555.2	29.1
7	306.6	16.1	**7**	356.5	18.7	**7**	406.4	21.3	**7**	456.4	23.9	**7**	506.3	26.5	**7**	556.2	29.2
8	307.6	16.1	**8**	357.5	18.7	**8**	407.4	21.4	**8**	457.4	24.0	**8**	507.3	26.6	**8**	557.2	29.2
9	308.6	16.2	**9**	358.5	18.8	**9**	408.4	21.4	**9**	458.4	24.0	**9**	508.3	26.6	**9**	558.2	29.3
310	309.6	16.2	**360**	359.5	18.8	**410**	409.4	21.5	**460**	459.4	24.1	**510**	509.3	26.7	**560**	559.2	29.3
1	310.6	16.3	**1**	360.5	18.9	**1**	410.4	21.5	**1**	460.4	24.1	**1**	510.3	26.7	**1**	560.2	29.4
2	311.6	16.3	**2**	361.5	18.9	**2**	411.4	21.6	**2**	461.4	24.2	**2**	511.3	26.8	**2**	561.2	29.4
3	312.6	16.4	**3**	362.5	19.0	**3**	412.4	21.6	**3**	462.4	24.2	**3**	512.3	26.8	**3**	562.2	29.5
4	313.6	16.4	**4**	363.5	19.1	**4**	413.4	21.7	**4**	463.4	24.3	**4**	513.3	26.9	**4**	563.2	29.5
5	314.6	16.5	**5**	364.5	19.1	**5**	414.4	21.7	**5**	464.4	24.3	**5**	514.3	27.0	**5**	564.2	29.6
6	315.6	16.5	**6**	365.5	19.2	**6**	415.4	21.8	**6**	465.4	24.4	**6**	515.3	27.0	**6**	565.2	29.6
7	316.6	16.6	**7**	366.5	19.2	**7**	416.4	21.8	**7**	466.4	24.4	**7**	516.3	27.1	**7**	566.2	29.7
8	317.6	16.6	**8**	367.5	19.3	**8**	417.4	21.9	**8**	467.4	24.5	**8**	517.3	27.1	**8**	567.2	29.7
9	318.6	16.7	**9**	368.5	19.3	**9**	418.4	21.9	**9**	468.4	24.5	**9**	518.3	27.2	**9**	568.2	29.8
320	319.6	16.7	**370**	369.5	19.4	**420**	419.4	22.0	**470**	469.4	24.6	**520**	519.3	27.2	**570**	569.2	29.8
1	320.6	16.8	**1**	370.5	19.4	**1**	420.4	22.0	**1**	470.4	24.7	**1**	520.3	27.3	**1**	570.2	29.9
2	321.6	16.9	**2**	371.5	19.5	**2**	421.4	22.1	**2**	471.4	24.7	**2**	521.3	27.3	**2**	571.2	29.9
3	322.6	16.9	**3**	372.5	19.5	**3**	422.4	22.1	**3**	472.4	24.8	**3**	522.3	27.4	**3**	572.2	30.0
4	323.6	17.0	**4**	373.5	19.6	**4**	423.4	22.2	**4**	473.4	24.8	**4**	523.3	27.4	**4**	573.2	30.0
5	324.6	17.0	**5**	374.5	19.6	**5**	424.4	22.2	**5**	474.3	24.9	**5**	524.3	27.5	**5**	574.2	30.1
6	325.6	17.1	**6**	375.5	19.7	**6**	425.4	22.3	**6**	475.3	24.9	**6**	525.3	27.5	**6**	575.2	30.1
7	326.6	17.1	**7**	376.5	19.7	**7**	426.4	22.3	**7**	476.3	25.0	**7**	526.3	27.6	**7**	576.2	30.2
8	327.6	17.2	**8**	377.5	19.8	**8**	427.4	22.4	**8**	477.3	25.0	**8**	527.3	27.6	**8**	577.2	30.3
9	328.5	17.2	**9**	378.5	19.8	**9**	428.4	22.5	**9**	478.3	25.1	**9**	528.3	27.7	**9**	578.2	30.3
330	329.5	17.3	**380**	379.5	19.9	**430**	429.4	22.5	**480**	479.3	25.1	**530**	529.3	27.7	**580**	579.2	30.4
1	330.5	17.3	**1**	380.5	19.9	**1**	430.4	22.6	**1**	480.3	25.2	**1**	530.3	27.8	**1**	580.2	30.4
2	331.5	17.4	**2**	381.5	20.0	**2**	431.4	22.6	**2**	481.3	25.2	**2**	531.3	27.8	**2**	581.2	30.5
3	332.5	17.4	**3**	382.5	20.0	**3**	432.4	22.7	**3**	482.3	25.3	**3**	532.3	27.9	**3**	582.2	30.5
4	333.5	17.5	**4**	383.5	20.1	**4**	433.4	22.7	**4**	483.3	25.3	**4**	533.3	27.9	**4**	583.2	30.6
5	334.5	17.5	**5**	384.5	20.1	**5**	434.4	22.8	**5**	484.3	25.4	**5**	534.3	28.0	**5**	584.2	30.6
6	335.5	17.6	**6**	385.5	20.2	**6**	435.4	22.8	**6**	485.3	25.4	**6**	535.3	28.1	**6**	585.2	30.7
7	336.5	17.6	**7**	386.5	20.3	**7**	436.4	22.9	**7**	486.3	25.5	**7**	536.3	28.1	**7**	586.2	30.7
8	337.5	17.7	**8**	387.5	20.3	**8**	437.4	22.9	**8**	487.3	25.5	**8**	537.3	28.2	**8**	587.2	30.8
9	338.5	17.7	**9**	388.5	20.4	**9**	438.4	23.0	**9**	488.3	25.6	**9**	538.3	28.2	**9**	588.2	30.8
340	339.5	17.8	**390**	389.5	20.4	**440**	439.4	23.0	**490**	489.3	25.6	**540**	539.3	28.3	**590**	589.2	30.9
1	340.5	17.8	**1**	390.5	20.5	**1**	440.4	23.1	**1**	490.3	25.7	**1**	540.3	28.3	**1**	590.2	30.9
2	341.5	17.9	**2**	391.5	20.5	**2**	441.4	23.1	**2**	491.3	25.7	**2**	541.3	28.4	**2**	591.2	31.0
3	342.5	18.0	**3**	392.5	20.6	**3**	442.4	23.2	**3**	492.3	25.8	**3**	542.3	28.4	**3**	592.2	31.0
4	343.5	18.0	**4**	393.5	20.6	**4**	443.4	23.2	**4**	493.3	25.9	**4**	543.3	28.5	**4**	593.2	31.1
5	344.5	18.1	**5**	394.5	20.7	**5**	444.4	23.3	**5**	494.3	25.9	**5**	544.3	28.5	**5**	594.2	31.1
6	345.5	18.1	**6**	395.5	20.7	**6**	445.4	23.3	**6**	495.3	26.0	**6**	545.3	28.6	**6**	595.2	31.2
7	346.5	18.2	**7**	396.5	20.8	**7**	446.4	23.4	**7**	496.3	26.0	**7**	546.3	28.6	**7**	596.2	31.2
8	347.5	18.2	**8**	397.5	20.8	**8**	447.4	23.4	**8**	497.3	26.1	**8**	547.3	28.7	**8**	597.2	31.3
9	348.5	18.3	**9**	398.5	20.9	**9**	448.4	23.5	**9**	498.3	26.1	**9**	548.3	28.7	**9**	598.2	31.3
D	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ
ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap

R

359 356° 315

181 184 225

TABELA 1

TÁBUAS DE CARTEAÇÃO

R ou φm

001 004 045

179 176 135

ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap	
D	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap
0	0.0	0.0	**50**	49.9	3.5	**100**	99.8	7.0	**150**	149.6	10.5	**200**	199.5	14.0	**250**	249.4	17.4
1	1.0	0.1	**1**	50.9	3.6	**1**	100.8	7.0	**1**	150.6	10.5	**1**	200.5	14.0	**1**	250.4	17.5
2	2.0	0.1	**2**	51.9	3.6	**2**	101.8	7.1	**2**	151.6	10.6	**2**	201.5	14.1	**2**	251.4	17.6
3	3.0	0.2	**3**	52.9	3.7	**3**	102.7	7.2	**3**	152.6	10.7	**3**	202.5	14.2	**3**	252.4	17.6
4	4.0	0.3	**4**	53.9	3.8	**4**	103.7	7.3	**4**	153.6	10.7	**4**	203.5	14.2	**4**	253.4	17.7
5	5.0	0.3	**5**	54.9	3.8	**5**	104.7	7.3	**5**	154.6	10.8	**5**	204.5	14.3	**5**	254.4	17.8
6	6.0	0.4	**6**	55.9	3.9	**6**	105.7	7.4	**6**	155.6	10.9	**6**	205.5	14.4	**6**	255.4	17.9
7	7.0	0.5	**7**	56.9	4.0	**7**	106.7	7.5	**7**	156.6	11.0	**7**	206.5	14.4	**7**	256.4	17.9
8	8.0	0.6	**8**	57.9	4.0	**8**	107.7	7.5	**8**	157.6	11.0	**8**	207.5	14.5	**8**	257.4	18.0
9	9.0	0.6	**9**	58.9	4.1	**9**	108.7	7.6	**9**	158.6	11.1	**9**	208.5	14.6	**9**	258.4	18.1
10	10.0	0.7	**60**	59.9	4.2	**110**	109.7	7.7	**160**	159.6	11.2	**210**	209.5	14.6	**260**	259.4	18.1
1	11.0	0.8	**1**	60.9	4.3	**1**	110.7	7.7	**1**	160.6	11.2	**1**	210.5	14.7	**1**	260.4	18.2
2	12.0	0.8	**2**	61.8	4.3	**2**	111.7	7.8	**2**	161.6	11.3	**2**	211.5	14.8	**2**	261.4	18.3
3	13.0	0.9	**3**	62.8	4.4	**3**	112.7	7.9	**3**	162.6	11.4	**3**	212.5	14.9	**3**	262.4	18.3
4	14.0	1.0	**4**	63.8	4.5	**4**	113.7	8.0	**4**	163.6	11.4	**4**	213.5	14.9	**4**	263.4	18.4
5	15.0	1.0	**5**	64.8	4.5	**5**	114.7	8.0	**5**	164.6	11.5	**5**	214.5	15.0	**5**	264.4	18.5
6	16.0	1.1	**6**	65.8	4.6	**6**	115.7	8.1	**6**	165.6	11.6	**6**	215.5	15.1	**6**	265.4	18.6
7	17.0	1.2	**7**	66.8	4.7	**7**	116.7	8.2	**7**	166.6	11.6	**7**	216.5	15.1	**7**	266.3	18.6
8	18.0	1.3	**8**	67.8	4.7	**8**	117.7	8.2	**8**	167.6	11.7	**8**	217.5	15.2	**8**	267.3	18.7
9	19.0	1.3	**9**	68.8	4.8	**9**	118.7	8.3	**9**	168.6	11.8	**9**	218.5	15.3	**9**	268.3	18.8
20	20.0	1.4	**70**	69.8	4.9	**120**	119.7	8.4	**170**	169.6	11.9	**220**	219.5	15.3	**270**	269.3	18.8
1	20.9	1.5	**1**	70.8	5.0	**1**	120.7	8.4	**1**	170.6	11.9	**1**	220.5	15.4	**1**	270.3	18.9
2	21.9	1.5	**2**	71.8	5.0	**2**	121.7	8.5	**2**	171.6	12.0	**2**	221.5	15.5	**2**	271.3	19.0
3	22.9	1.6	**3**	72.8	5.1	**3**	122.7	8.6	**3**	172.6	12.1	**3**	222.5	15.6	**3**	272.3	19.0
4	23.9	1.7	**4**	73.8	5.2	**4**	123.7	8.6	**4**	173.6	12.1	**4**	223.5	15.6	**4**	273.3	19.1
5	24.9	1.7	**5**	74.8	5.2	**5**	124.7	8.7	**5**	174.6	12.2	**5**	224.5	15.7	**5**	274.3	19.2
6	25.9	1.8	**6**	75.8	5.3	**6**	125.7	8.8	**6**	175.6	12.3	**6**	225.4	15.8	**6**	275.3	19.3
7	26.9	1.9	**7**	76.8	5.4	**7**	126.7	8.9	**7**	176.6	12.3	**7**	226.4	15.8	**7**	276.3	19.3
8	27.9	2.0	**8**	77.8	5.4	**8**	127.7	8.9	**8**	177.6	12.4	**8**	227.4	15.9	**8**	277.3	19.4
9	28.9	2.0	**9**	78.8	5.5	**9**	128.7	9.0	**9**	178.6	12.5	**9**	228.4	16.0	**9**	278.3	19.5
30	29.9	2.1	**80**	79.8	5.6	**130**	129.7	9.1	**180**	179.6	12.6	**230**	229.4	16.0	**280**	279.3	19.5
1	30.9	2.2	**1**	80.8	5.7	**1**	130.7	9.1	**1**	180.6	12.6	**1**	230.4	16.1	**1**	280.3	19.6
2	31.9	2.2	**2**	81.8	5.7	**2**	131.7	9.2	**2**	181.6	12.7	**2**	231.4	16.2	**2**	281.3	19.7
3	32.9	2.3	**3**	82.8	5.8	**3**	132.7	9.3	**3**	182.6	12.8	**3**	232.4	16.3	**3**	282.3	19.7
4	33.9	2.4	**4**	83.8	5.9	**4**	133.7	9.3	**4**	183.6	12.8	**4**	233.4	16.3	**4**	283.3	19.8
5	34.9	2.4	**5**	84.8	5.9	**5**	134.7	9.4	**5**	184.5	12.9	**5**	234.4	16.4	**5**	284.3	19.9
6	35.9	2.5	**6**	85.8	6.0	**6**	135.7	9.5	**6**	185.5	13.0	**6**	235.4	16.5	**6**	285.3	20.0
7	36.9	2.6	**7**	86.8	6.1	**7**	136.7	9.6	**7**	186.5	13.0	**7**	236.4	16.5	**7**	286.3	20.0
8	37.9	2.7	**8**	87.8	6.1	**8**	137.7	9.6	**8**	187.5	13.1	**8**	237.4	16.6	**8**	287.3	20.1
9	38.9	2.7	**9**	88.8	6.2	**9**	138.7	9.7	**9**	188.5	13.2	**9**	238.4	16.7	**9**	288.3	20.2
40	39.9	2.8	**90**	89.8	6.3	**140**	139.7	9.8	**190**	189.5	13.3	**240**	239.4	16.7	**290**	289.3	20.2
1	40.9	2.9	**1**	90.8	6.3	**1**	140.7	9.8	**1**	190.5	13.3	**1**	240.4	16.8	**1**	290.3	20.3
2	41.9	2.9	**2**	91.8	6.4	**2**	141.7	9.9	**2**	191.5	13.4	**2**	241.4	16.9	**2**	291.3	20.4
3	42.9	3.0	**3**	92.8	6.5	**3**	142.7	10.0	**3**	192.5	13.5	**3**	242.4	17.0	**3**	292.3	20.4
4	43.9	3.1	**4**	93.8	6.6	**4**	143.6	10.0	**4**	193.5	13.5	**4**	243.4	17.0	**4**	293.3	20.5
5	44.9	3.1	**5**	94.8	6.6	**5**	144.6	10.1	**5**	194.5	13.6	**5**	244.4	17.1	**5**	294.3	20.6
6	45.9	3.2	**6**	95.8	6.7	**6**	145.6	10.2	**6**	195.5	13.7	**6**	245.4	17.2	**6**	295.3	20.6
7	46.9	3.3	**7**	96.8	6.8	**7**	146.6	10.3	**7**	196.5	13.7	**7**	246.4	17.2	**7**	296.3	20.7
8	47.9	3.3	**8**	97.8	6.8	**8**	147.6	10.3	**8**	197.5	13.8	**8**	247.4	17.3	**8**	297.3	20.8
9	48.9	3.4	**9**	98.8	6.9	**9**	148.6	10.4	**9**	198.5	13.9	**9**	248.4	17.4	**9**	298.3	20.9
D	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ
ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap

271 274 315

269 266 225

R

089 086° 045

091 094 135

R ou φm

ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap	
D	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap
300	299.3	20.9	**350**	349.1	24.4	**400**	399.0	27.9	**450**	448.9	31.4	**500**	498.8	34.9	**550**	548.7	38.4
1	300.3	21.0	**1**	350.1	24.5	**1**	400.0	28.0	**1**	449.9	31.5	**1**	499.8	34.9	**1**	549.7	38.4
2	301.3	21.1	**2**	351.1	24.6	**2**	401.0	28.0	**2**	450.9	31.5	**2**	500.8	35.0	**2**	550.7	38.5
3	302.3	21.1	**3**	352.1	24.6	**3**	402.0	28.1	**3**	451.9	31.6	**3**	501.8	35.1	**3**	551.7	38.6
4	303.3	21.2	**4**	353.1	24.7	**4**	403.0	28.2	**4**	452.9	31.7	**4**	502.8	35.2	**4**	552.7	38.6
5	304.3	21.3	**5**	354.1	24.8	**5**	404.0	28.3	**5**	453.9	31.7	**5**	503.8	35.2	**5**	553.6	38.7
6	305.3	21.3	**6**	355.1	24.8	**6**	405.0	28.3	**6**	454.9	31.8	**6**	504.8	35.3	**6**	554.6	38.8
7	306.3	21.4	**7**	356.1	24.9	**7**	406.0	28.4	**7**	455.9	31.9	**7**	505.8	35.4	**7**	555.6	38.9
8	307.2	21.5	**8**	357.1	25.0	**8**	407.0	28.5	**8**	456.9	31.9	**8**	506.8	35.4	**8**	556.6	38.9
9	308.2	21.6	**9**	358.1	25.0	**9**	408.0	28.5	**9**	457.9	32.0	**9**	507.8	35.5	**9**	557.6	39.0
310	309.2	21.6	**360**	359.1	25.1	**410**	409.0	28.6	**460**	458.9	32.1	**510**	508.8	35.6	**560**	558.6	39.1
1	310.2	21.7	**1**	360.1	25.2	**1**	410.0	28.7	**1**	459.9	32.2	**1**	509.8	35.6	**1**	559.6	39.1
2	311.2	21.8	**2**	361.1	25.3	**2**	411.0	28.7	**2**	460.9	32.2	**2**	510.8	35.7	**2**	560.6	39.2
3	312.2	21.8	**3**	362.1	25.3	**3**	412.0	28.8	**3**	461.9	32.3	**3**	511.8	35.8	**3**	561.6	39.3
4	313.2	21.9	**4**	363.1	25.4	**4**	413.0	28.9	**4**	462.9	32.4	**4**	512.7	35.9	**4**	562.6	39.3
5	314.2	22.0	**5**	364.1	25.5	**5**	414.0	28.9	**5**	463.9	32.4	**5**	513.7	35.9	**5**	563.6	39.4
6	315.2	22.0	**6**	365.1	25.5	**6**	415.0	29.0	**6**	464.9	32.5	**6**	514.7	36.0	**6**	564.6	39.5
7	316.2	22.1	**7**	366.1	25.6	**7**	416.0	29.1	**7**	465.9	32.6	**7**	515.7	36.1	**7**	565.6	39.6
8	317.2	22.2	**8**	367.1	25.7	**8**	417.0	29.2	**8**	466.9	32.6	**8**	516.7	36.1	**8**	566.6	39.6
9	318.2	22.3	**9**	368.1	25.7	**9**	418.0	29.2	**9**	467.9	32.7	**9**	517.7	36.2	**9**	567.6	39.7
320	319.2	22.3	**370**	369.1	25.8	**420**	419.0	29.3	**470**	468.9	32.8	**520**	518.7	36.3	**570**	568.6	39.8
1	320.2	22.4	**1**	370.1	25.9	**1**	420.0	29.4	**1**	469.9	32.9	**1**	519.7	36.3	**1**	569.6	39.8
2	321.2	22.5	**2**	371.1	25.9	**2**	421.0	29.4	**2**	470.9	32.9	**2**	520.7	36.4	**2**	570.6	39.9
3	322.2	22.5	**3**	372.1	26.0	**3**	422.0	29.5	**3**	471.8	33.0	**3**	521.7	36.5	**3**	571.6	40.0
4	323.2	22.6	**4**	373.1	26.1	**4**	423.0	29.6	**4**	472.8	33.1	**4**	522.7	36.6	**4**	572.6	40.0
5	324.2	22.7	**5**	374.1	26.2	**5**	424.0	29.6	**5**	473.8	33.1	**5**	523.7	36.6	**5**	573.6	40.1
6	325.2	22.7	**6**	375.1	26.2	**6**	425.0	29.7	**6**	474.8	33.2	**6**	524.7	36.7	**6**	574.6	40.2
7	326.2	22.8	**7**	376.1	26.3	**7**	426.0	29.8	**7**	475.8	33.3	**7**	525.7	36.8	**7**	575.6	40.2
8	327.2	22.9	**8**	377.1	26.4	**8**	427.0	29.9	**8**	476.8	33.3	**8**	526.7	36.8	**8**	576.6	40.3
9	328.2	22.9	**9**	378.1	26.4	**9**	428.0	29.9	**9**	477.8	33.4	**9**	527.7	36.9	**9**	577.6	40.4
330	329.2	23.0	**380**	379.1	26.5	**430**	429.0	30.0	**480**	478.8	33.5	**530**	528.7	37.0	**580**	578.6	40.5
1	330.2	23.1	**1**	380.1	26.6	**1**	429.9	30.1	**1**	479.8	33.6	**1**	529.7	37.0	**1**	579.6	40.5
2	331.2	23.2	**2**	381.1	26.6	**2**	430.9	30.1	**2**	480.8	33.6	**2**	530.7	37.1	**2**	580.6	40.6
3	332.2	23.2	**3**	382.1	26.7	**3**	431.9	30.2	**3**	481.8	33.7	**3**	531.7	37.2	**3**	581.6	40.7
4	333.2	23.3	**4**	383.1	26.8	**4**	432.9	30.3	**4**	482.8	33.8	**4**	532.7	37.2	**4**	582.6	40.7
5	334.2	23.4	**5**	384.1	26.9	**5**	433.9	30.3	**5**	483.8	33.8	**5**	533.7	37.3	**5**	583.6	40.8
6	335.2	23.4	**6**	385.1	26.9	**6**	434.9	30.4	**6**	484.8	33.9	**6**	534.7	37.4	**6**	584.6	40.9
7	336.2	23.5	**7**	386.1	27.0	**7**	435.9	30.5	**7**	485.8	34.0	**7**	535.7	37.5	**7**	585.6	40.9
8	337.2	23.6	**8**	387.1	27.1	**8**	436.9	30.6	**8**	486.8	34.0	**8**	536.7	37.5	**8**	586.6	41.0
9	338.2	23.6	**9**	388.1	27.1	**9**	437.9	30.6	**9**	487.8	34.1	**9**	537.7	37.6	**9**	587.6	41.1
340	339.2	23.7	**390**	389.0	27.2	**440**	438.9	30.7	**490**	488.8	34.2	**540**	538.7	37.7	**590**	588.6	41.2
1	340.2	23.8	**1**	390.0	27.3	**1**	439.9	30.8	**1**	489.8	34.3	**1**	539.7	37.7	**1**	589.6	41.2
2	341.2	23.9	**2**	391.0	27.3	**2**	440.9	30.8	**2**	490.8	34.3	**2**	540.7	37.8	**2**	590.6	41.3
3	342.2	23.9	**3**	392.0	27.4	**3**	441.9	30.9	**3**	491.8	34.4	**3**	541.7	37.9	**3**	591.6	41.4
4	343.2	24.0	**4**	393.0	27.5	**4**	442.9	31.0	**4**	492.8	34.5	**4**	542.7	37.9	**4**	592.6	41.4
5	344.2	24.1	**5**	394.0	27.6	**5**	443.9	31.0	**5**	493.8	34.5	**5**	543.7	38.0	**5**	593.6	41.5
6	345.2	24.1	**6**	395.0	27.6	**6**	444.9	31.1	**6**	494.8	34.6	**6**	544.7	38.1	**6**	594.5	41.6
7	346.2	24.2	**7**	396.0	27.7	**7**	445.9	31.2	**7**	495.8	34.7	**7**	545.7	38.2	**7**	595.5	41.6
8	347.2	24.3	**8**	397.0	27.8	**8**	446.9	31.3	**8**	496.8	34.7	**8**	546.7	38.2	**8**	596.5	41.7
9	348.1	24.3	**9**	398.0	27.8	**9**	447.9	31.3	**9**	497.8	34.8	**9**	547.7	38.3	**9**	597.5	41.8
D	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ
ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap

TABELA 1

TÁBUAS DE CARTEAÇÃO

ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap	
D	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap
0	0.0	0.0	**50**	49.8	4.4	**100**	99.6	8.7	**150**	149.4	13.1	**200**	199.2	17.4	**250**	249.0	21.8
1	1.0	0.1	**1**	50.8	4.4	**1**	100.6	8.8	**1**	150.4	13.2	**1**	200.2	17.5	**1**	250.0	21.9
2	2.0	0.2	**2**	51.8	4.5	**2**	101.6	8.9	**2**	151.4	13.2	**2**	201.2	17.6	**2**	251.0	22.0
3	3.0	0.3	**3**	52.8	4.6	**3**	102.6	9.0	**3**	152.4	13.3	**3**	202.2	17.7	**3**	252.0	22.1
4	4.0	0.3	**4**	53.8	4.7	**4**	103.6	9.1	**4**	153.4	13.4	**4**	203.2	17.8	**4**	253.0	22.1
5	5.0	0.4	**5**	54.8	4.8	**5**	104.6	9.2	**5**	154.4	13.5	**5**	204.2	17.9	**5**	254.0	22.2
6	6.0	0.5	**6**	55.8	4.9	**6**	105.6	9.2	**6**	155.4	13.6	**6**	205.2	18.0	**6**	255.0	22.3
7	7.0	0.6	**7**	56.8	5.0	**7**	106.6	9.3	**7**	156.4	13.7	**7**	206.2	18.0	**7**	256.0	22.4
8	8.0	0.7	**8**	57.8	5.1	**8**	107.6	9.4	**8**	157.4	13.8	**8**	207.2	18.1	**8**	257.0	22.5
9	9.0	0.8	**9**	58.8	5.1	**9**	108.6	9.5	**9**	158.4	13.9	**9**	208.2	18.2	**9**	258.0	22.6
10	10.0	0.9	**60**	59.8	5.2	**110**	109.6	9.6	**160**	159.4	13.9	**210**	209.2	18.3	**260**	259.0	22.7
1	11.0	1.0	**1**	60.8	5.3	**1**	110.6	9.7	**1**	160.4	14.0	**1**	210.2	18.4	**1**	260.0	22.7
2	12.0	1.0	**2**	61.8	5.4	**2**	111.6	9.8	**2**	161.4	14.1	**2**	211.2	18.5	**2**	261.0	22.8
3	13.0	1.1	**3**	62.8	5.5	**3**	112.6	9.8	**3**	162.4	14.2	**3**	212.2	18.6	**3**	262.0	22.9
4	13.9	1.2	**4**	63.8	5.6	**4**	113.6	9.9	**4**	163.4	14.3	**4**	213.2	18.7	**4**	263.0	23.0
5	14.9	1.3	**5**	64.8	5.7	**5**	114.6	10.0	**5**	164.4	14.4	**5**	214.2	18.7	**5**	264.0	23.1
6	15.9	1.4	**6**	65.7	5.8	**6**	115.6	10.1	**6**	165.4	14.5	**6**	215.2	18.8	**6**	265.0	23.2
7	16.9	1.5	**7**	66.7	5.8	**7**	116.6	10.2	**7**	166.4	14.6	**7**	216.2	18.9	**7**	266.0	23.3
8	17.9	1.6	**8**	67.7	5.9	**8**	117.6	10.3	**8**	167.4	14.6	**8**	217.2	19.0	**8**	267.0	23.4
9	18.9	1.7	**9**	68.7	6.0	**9**	118.5	10.4	**9**	168.4	14.7	**9**	218.2	19.1	**9**	268.0	23.4
20	19.9	1.7	**70**	69.7	6.1	**120**	119.5	10.5	**170**	169.4	14.8	**220**	219.2	19.2	**270**	269.0	23.5
1	20.9	1.8	**1**	70.7	6.2	**1**	120.5	10.5	**1**	170.3	14.9	**1**	220.2	19.3	**1**	270.0	23.6
2	21.9	1.9	**2**	71.7	6.3	**2**	121.5	10.6	**2**	171.3	15.0	**2**	221.2	19.3	**2**	271.0	23.7
3	22.9	2.0	**3**	72.7	6.4	**3**	122.5	10.7	**3**	172.3	15.1	**3**	222.2	19.4	**3**	272.0	23.8
4	23.9	2.1	**4**	73.7	6.4	**4**	123.5	10.8	**4**	173.3	15.2	**4**	223.1	19.5	**4**	273.0	23.9
5	24.9	2.2	**5**	74.7	6.5	**5**	124.5	10.9	**5**	174.3	15.3	**5**	224.1	19.6	**5**	274.0	24.0
6	25.9	2.3	**6**	75.7	6.6	**6**	125.5	11.0	**6**	175.3	15.3	**6**	225.1	19.7	**6**	274.9	24.1
7	26.9	2.4	**7**	76.7	6.7	**7**	126.5	11.1	**7**	176.3	15.4	**7**	226.1	19.8	**7**	275.9	24.1
8	27.9	2.4	**8**	77.7	6.8	**8**	127.5	11.2	**8**	177.3	15.5	**8**	227.1	19.9	**8**	276.9	24.2
9	28.9	2.5	**9**	78.7	6.9	**9**	128.5	11.2	**9**	178.3	15.6	**9**	228.1	20.0	**9**	277.9	24.3
30	29.9	2.6	**80**	79.7	7.0	**130**	129.5	11.3	**180**	179.3	15.7	**230**	229.1	20.0	**280**	278.9	24.4
1	30.9	2.7	**1**	80.7	7.1	**1**	130.5	11.4	**1**	180.3	15.8	**1**	230.1	20.1	**1**	279.9	24.5
2	31.9	2.8	**2**	81.7	7.1	**2**	131.5	11.5	**2**	181.3	15.9	**2**	231.1	20.2	**2**	280.9	24.6
3	32.9	2.9	**3**	82.7	7.2	**3**	132.5	11.6	**3**	182.3	15.9	**3**	232.1	20.3	**3**	281.9	24.7
4	33.9	3.0	**4**	83.7	7.3	**4**	133.5	11.7	**4**	183.3	16.0	**4**	233.1	20.4	**4**	282.9	24.8
5	34.9	3.1	**5**	84.7	7.4	**5**	134.5	11.8	**5**	184.3	16.1	**5**	234.1	20.5	**5**	283.9	24.8
6	35.9	3.1	**6**	85.7	7.5	**6**	135.5	11.9	**6**	185.3	16.2	**6**	235.1	20.6	**6**	284.9	24.9
7	36.9	3.2	**7**	86.7	7.6	**7**	136.5	11.9	**7**	186.3	16.3	**7**	236.1	20.7	**7**	285.9	25.0
8	37.9	3.3	**8**	87.7	7.7	**8**	137.5	12.0	**8**	187.3	16.4	**8**	237.1	20.7	**8**	286.9	25.1
9	38.9	3.4	**9**	88.7	7.8	**9**	138.5	12.1	**9**	188.3	16.5	**9**	238.1	20.8	**9**	287.9	25.2
40	39.8	3.5	**90**	89.7	7.8	**140**	139.5	12.2	**190**	189.3	16.6	**240**	239.1	20.9	**290**	288.9	25.3
1	40.8	3.6	**1**	90.7	7.9	**1**	140.5	12.3	**1**	190.3	16.6	**1**	240.1	21.0	**1**	289.9	25.4
2	41.8	3.7	**2**	91.6	8.0	**2**	141.5	12.4	**2**	191.3	16.7	**2**	241.1	21.1	**2**	290.9	25.4
3	42.8	3.7	**3**	92.6	8.1	**3**	142.5	12.5	**3**	192.3	16.8	**3**	242.1	21.2	**3**	291.9	25.5
4	43.8	3.8	**4**	93.6	8.2	**4**	143.5	12.6	**4**	193.3	16.9	**4**	243.1	21.3	**4**	292.9	25.6
5	44.8	3.9	**5**	94.6	8.3	**5**	144.4	12.6	**5**	194.3	17.0	**5**	244.1	21.4	**5**	293.9	25.7
6	45.8	4.0	**6**	95.6	8.4	**6**	145.4	12.7	**6**	195.3	17.1	**6**	245.1	21.4	**6**	294.9	25.8
7	46.8	4.1	**7**	96.6	8.5	**7**	146.4	12.8	**7**	196.3	17.2	**7**	246.1	21.5	**7**	295.9	25.9
8	47.8	4.2	**8**	97.6	8.5	**8**	147.4	12.9	**8**	197.2	17.3	**8**	247.1	21.6	**8**	296.9	26.0
9	48.8	4.3	**9**	98.6	8.6	**9**	148.4	13.0	**9**	198.2	17.3	**9**	248.1	21.7	**9**	297.9	26.1
D	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ
ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap

ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap	
D	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap
300	298.9	26.1	**350**	348.7	30.5	**400**	398.5	34.9	**450**	448.3	39.2	**500**	498.1	43.6	**550**	547.9	47.9
1	299.9	26.2	**1**	349.7	30.6	**1**	399.5	34.9	**1**	449.3	39.3	**1**	499.1	43.7	**1**	548.9	48.0
2	300.9	26.3	**2**	350.7	30.7	**2**	400.5	35.0	**2**	450.3	39.4	**2**	500.1	43.8	**2**	549.9	48.1
3	301.8	26.4	**3**	351.7	30.8	**3**	401.5	35.1	**3**	451.3	39.5	**3**	501.1	43.8	**3**	550.9	48.2
4	302.8	26.5	**4**	352.7	30.9	**4**	402.5	35.2	**4**	452.3	39.6	**4**	502.1	43.9	**4**	551.9	48.3
5	303.8	26.6	**5**	353.6	30.9	**5**	403.5	35.3	**5**	453.3	39.7	**5**	503.1	44.0	**5**	552.9	48.4
6	304.8	26.7	**6**	354.6	31.0	**6**	404.5	35.4	**6**	454.3	39.7	**6**	504.1	44.1	**6**	553.9	48.5
7	305.8	26.8	**7**	355.6	31.1	**7**	405.5	35.5	**7**	455.3	39.8	**7**	505.1	44.2	**7**	554.9	48.5
8	306.8	26.8	**8**	356.6	31.2	**8**	406.4	35.6	**8**	456.3	39.9	**8**	506.1	44.3	**8**	555.9	48.6
9	307.8	26.9	**9**	357.6	31.3	**9**	407.4	35.6	**9**	457.3	40.0	**9**	507.1	44.4	**9**	556.9	48.7
310	308.8	27.0	**360**	358.6	31.4	**410**	408.4	35.7	**460**	458.2	40.1	**510**	508.1	44.4	**560**	557.9	48.8
1	309.8	27.1	**1**	359.6	31.5	**1**	409.4	35.8	**1**	459.2	40.2	**1**	509.1	44.5	**1**	558.9	48.9
2	310.8	27.2	**2**	360.6	31.6	**2**	410.4	35.9	**2**	460.2	40.3	**2**	510.1	44.6	**2**	559.9	49.0
3	311.8	27.3	**3**	361.6	31.6	**3**	411.4	36.0	**3**	461.2	40.4	**3**	511.0	44.7	**3**	560.9	49.1
4	312.8	27.4	**4**	362.6	31.7	**4**	412.4	36.1	**4**	462.2	40.4	**4**	512.0	44.8	**4**	561.9	49.2
5	313.8	27.5	**5**	363.6	31.8	**5**	413.4	36.2	**5**	463.2	40.5	**5**	513.0	44.9	**5**	562.8	49.2
6	314.8	27.5	**6**	364.6	31.9	**6**	414.4	36.3	**6**	464.2	40.6	**6**	514.0	45.0	**6**	563.8	49.3
7	315.8	27.6	**7**	365.6	32.0	**7**	415.4	36.3	**7**	465.2	40.7	**7**	515.0	45.1	**7**	564.8	49.4
8	316.8	27.7	**8**	366.6	32.1	**8**	416.4	36.4	**8**	466.2	40.8	**8**	516.0	45.1	**8**	565.8	49.5
9	317.8	27.8	**9**	367.6	32.2	**9**	417.4	36.5	**9**	467.2	40.9	**9**	517.0	45.2	**9**	566.8	49.6
320	318.8	27.9	**370**	368.6	32.2	**420**	418.4	36.6	**470**	468.2	41.0	**520**	518.0	45.3	**570**	567.8	49.7
1	319.8	28.0	**1**	369.6	32.3	**1**	419.4	36.7	**1**	469.2	41.1	**1**	519.0	45.4	**1**	568.8	49.8
2	320.8	28.1	**2**	370.6	32.4	**2**	420.4	36.8	**2**	470.2	41.1	**2**	520.0	45.5	**2**	569.8	49.9
3	321.8	28.2	**3**	371.6	32.5	**3**	421.4	36.9	**3**	471.2	41.2	**3**	521.0	45.6	**3**	570.8	49.9
4	322.8	28.2	**4**	372.6	32.6	**4**	422.4	37.0	**4**	472.2	41.3	**4**	522.0	45.7	**4**	571.8	50.0
5	323.8	28.3	**5**	373.6	32.7	**5**	423.4	37.0	**5**	473.2	41.4	**5**	523.0	45.8	**5**	572.8	50.1
6	324.8	28.4	**6**	374.6	32.8	**6**	424.4	37.1	**6**	474.2	41.5	**6**	524.0	45.8	**6**	573.8	50.2
7	325.8	28.5	**7**	375.6	32.9	**7**	425.4	37.2	**7**	475.2	41.6	**7**	525.0	45.9	**7**	574.8	50.3
8	326.8	28.6	**8**	376.6	32.9	**8**	426.4	37.3	**8**	476.2	41.7	**8**	526.0	46.0	**8**	575.8	50.4
9	327.7	28.7	**9**	377.6	33.0	**9**	427.4	37.4	**9**	477.2	41.7	**9**	527.0	46.1	**9**	576.8	50.5
330	328.7	28.8	**380**	378.6	33.1	**430**	428.4	37.5	**480**	478.2	41.8	**530**	528.0	46.2	**580**	577.8	50.6
1	329.7	28.8	**1**	379.6	33.2	**1**	429.4	37.6	**1**	479.2	41.9	**1**	529.0	46.3	**1**	578.8	50.6
2	330.7	28.9	**2**	380.5	33.3	**2**	430.4	37.7	**2**	480.2	42.0	**2**	530.0	46.4	**2**	579.8	50.7
3	331.7	29.0	**3**	381.5	33.4	**3**	431.4	37.7	**3**	481.2	42.1	**3**	531.0	46.5	**3**	580.8	50.8
4	332.7	29.1	**4**	382.5	33.5	**4**	432.3	37.8	**4**	482.2	42.2	**4**	532.0	46.5	**4**	581.8	50.9
5	333.7	29.2	**5**	383.5	33.6	**5**	433.3	37.9	**5**	483.2	42.3	**5**	533.0	46.6	**5**	582.8	51.0
6	334.7	29.3	**6**	384.5	33.6	**6**	434.3	38.0	**6**	484.2	42.4	**6**	534.0	46.7	**6**	583.8	51.1
7	335.7	29.4	**7**	385.5	33.7	**7**	435.3	38.1	**7**	485.1	42.4	**7**	535.0	46.8	**7**	584.8	51.2
8	336.7	29.5	**8**	386.5	33.8	**8**	436.3	38.2	**8**	486.1	42.5	**8**	536.0	46.9	**8**	585.8	51.2
9	337.7	29.5	**9**	387.5	33.9	**9**	437.3	38.3	**9**	487.1	42.6	**9**	536.9	47.0	**9**	586.8	51.3
340	338.7	29.6	**390**	388.5	34.0	**440**	438.3	38.3	**490**	488.1	42.7	**540**	537.9	47.1	**590**	587.8	51.4
1	339.7	29.7	**1**	389.5	34.1	**1**	439.3	38.4	**1**	489.1	42.8	**1**	538.9	47.2	**1**	588.8	51.5
2	340.7	29.8	**2**	390.5	34.2	**2**	440.3	38.5	**2**	490.1	42.9	**2**	539.9	47.2	**2**	589.7	51.6
3	341.7	29.9	**3**	391.5	34.3	**3**	441.3	38.6	**3**	491.1	43.0	**3**	540.9	47.3	**3**	590.7	51.7
4	342.7	30.0	**4**	392.5	34.3	**4**	442.3	38.7	**4**	492.1	43.1	**4**	541.9	47.4	**4**	591.7	51.8
5	343.7	30.1	**5**	393.5	34.4	**5**	443.3	38.8	**5**	493.1	43.1	**5**	542.9	47.5	**5**	592.7	51.9
6	344.7	30.2	**6**	394.5	34.5	**6**	444.3	38.9	**6**	494.1	43.2	**6**	543.9	47.6	**6**	593.7	51.9
7	345.7	30.2	**7**	395.5	34.6	**7**	445.3	39.0	**7**	495.1	43.3	**7**	544.9	47.7	**7**	594.7	52.0
8	346.7	30.3	**8**	396.5	34.7	**8**	446.3	39.0	**8**	496.1	43.4	**8**	545.9	47.8	**8**	595.7	52.1
9	347.7	30.4	**9**	397.5	34.8	**9**	447.3	39.1	**9**	497.1	43.5	**9**	546.9	47.8	**9**	596.7	52.2
D	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ
ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap

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359 354° 315

181 186 225

TABELA 1

TÁBUAS DE CARTEAÇÃO

R ou φm

001 006 045

179 174 135

ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap	
D	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap
0	0.0	0.0	**50**	49.7	5.2	**100**	99.5	10.5	**150**	149.2	15.7	**200**	198.9	20.9	**250**	248.6	26.1
1	1.0	0.1	**1**	50.7	5.3	**1**	100.4	10.6	**1**	150.2	15.8	**1**	199.9	21.0	**1**	249.6	26.2
2	2.0	0.2	**2**	51.7	5.4	**2**	101.4	10.7	**2**	151.2	15.9	**2**	200.9	21.1	**2**	250.6	26.3
3	3.0	0.3	**3**	52.7	5.5	**3**	102.4	10.8	**3**	152.2	16.0	**3**	201.9	21.2	**3**	251.6	26.4
4	4.0	0.4	**4**	53.7	5.6	**4**	103.4	10.9	**4**	153.2	16.1	**4**	202.9	21.3	**4**	252.6	26.6
5	5.0	0.5	**5**	54.7	5.7	**5**	104.4	11.0	**5**	154.2	16.2	**5**	203.9	21.4	**5**	253.6	26.7
6	6,0	0.6	**6**	55.7	5.9	**6**	105.4	11.1	**6**	155.1	16.3	**6**	204.9	21.5	**6**	254.6	26.8
7	7.0	0.7	**7**	56.7	6.0	**7**	106.4	11.2	**7**	156.1	16.4	**7**	205.9	21.6	**7**	255.6	26.9
8	8.0	0.8	**8**	57.7	6.1	**8**	107.4	11.3	**8**	157.1	16.5	**8**	206.9	21.7	**8**	256.6	27.0
9	9.0	0.9	**9**	58.7	6.2	**9**	108.4	11.4	**9**	158.1	16.6	**9**	207.9	21.8	**9**	257.6	27.1
10	9.9	1.0	**60**	59.7	6.3	**110**	109.4	11.5	**160**	159.1	16.7	**210**	208.8	22.0	**260**	258.6	27.2
1	10.9	1.1	**1**	60.7	6.4	**1**	110.4	11.6	**1**	160.1	16.8	**1**	209.8	22.1	**1**	259.6	27.3
2	11.9	1.3	**2**	61.7	6.5	**2**	111.4	11.7	**2**	161.1	16.9	**2**	210.8	22.2	**2**	260.6	27.4
3	12.9	1.4	**3**	62.7	6.6	**3**	112.4	11.8	**3**	162.1	17.0	**3**	211.8	22.3	**3**	261.6	27.5
4	13.9	1.5	**4**	63.6	6.7	**4**	113.4	11.9	**4**	163.1	17.1	**4**	212.8	22.4	**4**	262.6	27.6
5	14.9	1.6	**5**	64.6	6.8	**5**	114.4	12.0	**5**	164.1	17.2	**5**	213.8	22.5	**5**	263.5	27.7
6	15.9	1.7	**6**	65.6	6.9	**6**	115.4	12.1	**6**	165.1	17.4	**6**	214.8	22.6	**6**	264.5	27.8
7	16.9	1.8	**7**	66.6	7.0	**7**	116.4	12.2	**7**	166.1	17.5	**7**	215.8	22.7	**7**	265.5	27.9
8	17.9	1.9	**8**	67.6	7.1	**8**	117.4	12.3	**8**	167.1	17.6	**8**	216.8	22.8	**8**	266.5	28.0
9	18.9	2.0	**9**	68.6	7.2	**9**	118.3	12.4	**9**	168.1	17.7	**9**	217.8	22.9	**9**	267.5	28.1
20	19.9	2.1	**70**	69.6	7.3	**120**	119.3	12.5	**170**	169.1	17.8	**220**	218.8	23.0	**270**	268.5	28.2
1	20.9	2.2	**1**	70.6	7.4	**1**	120.3	12.6	**1**	170.1	17.9	**1**	219.8	23.1	**1**	269.5	28.3
2	21.9	2.3	**2**	71.6	7.5	**2**	121.3	12.8	**2**	171.1	18.0	**2**	220.8	23.2	**2**	270.5	28.4
3	22.9	2.4	**3**	72.6	7.6	**3**	122.3	12.9	**3**	172.1	18.1	**3**	221.8	23.3	**3**	271.5	28.5
4	23.9	2.5	**4**	73.6	7.7	**4**	123.3	13.0	**4**	173.0	18.2	**4**	222.8	23.4	**4**	272.5	28.6
5	24.9	2.6	**5**	74.6	7.8	**5**	124.3	13.1	**5**	174.0	18.3	**5**	223.8	23.5	**5**	273.5	28.7
6	25.9	2.7	**6**	75.6	7.9	**6**	125.3	13.2	**6**	175.0	18.4	**6**	224.8	23.6	**6**	274.5	28.8
7	26.9	2.8	**7**	76.6	8.0	**7**	126.3	13.3	**7**	176.0	18.5	**7**	225.8	23.7	**7**	275.5	29.0
8	27.8	2.9	**8**	77.6	8.2	**8**	127.3	13.4	**8**	177.0	18.6	**8**	226.8	23.8	**8**	276.5	29.1
9	28.8	3.0	**9**	78.6	8.3	**9**	128.3	13.5	**9**	178.0	18.7	**9**	227.7	23.9	**9**	277.5	29.2
30	29.8	3.1	**80**	79.6	8.4	**130**	129.3	13.6	**180**	179.0	18.8	**230**	228.7	24.0	**280**	278.5	29.3
1	30.8	3.2	**1**	80.6	8.5	**1**	130.3	13.7	**1**	180.0	18.9	**1**	229.7	24.1	**1**	279.5	29.4
2	31.8	3.3	**2**	81.6	8.6	**2**	131.3	13.8	**2**	181.0	19.0	**2**	230.7	24.3	**2**	280.5	29.5
3	32.8	3.4	**3**	82.5	8.7	**3**	132.3	13.9	**3**	182.0	19.1	**3**	231.7	24.4	**3**	281.4	29.6
4	33.8	3.6	**4**	83.5	8.8	**4**	133.3	14.0	**4**	183.0	19.2	**4**	232.7	24.5	**4**	282.4	29.7
5	34.8	3.7	**5**	84.5	8.9	**5**	134.3	14.1	**5**	184.0	19.3	**5**	233.7	24.6	**5**	283.4	29.8
6	35.8	3.8	**6**	85.5	9.0	**6**	135.3	14.2	**6**	185.0	19.4	**6**	234.7	24.7	**6**	284.4	29.9
7	36.8	3.9	**7**	86.5	9.1	**7**	136.2	14.3	**7**	186.0	19.5	**7**	235.7	24.8	**7**	285.4	30.0
8	37.8	4.0	**8**	87.5	9.2	**8**	137.2	14.4	**8**	187.0	19.7	**8**	236.7	24.9	**8**	286.4	30.1
9	38.8	4.1	**9**	88.5	9.3	**9**	138.2	14.5	**9**	188.0	19.8	**9**	237.7	25.0	**9**	287.4	30.2
40	39.8	4.2	**90**	89.5	9.4	**140**	139.2	14.6	**190**	189.0	19.9	**240**	238.7	25.1	**290**	288.4	30.3
1	40.8	4.3	**1**	90.5	9.5	**1**	140.2	14.7	**1**	190.0	20.0	**1**	239.7	25.2	**1**	289.4	30.4
2	41.8	4.4	**2**	91.5	9.6	**2**	141.2	14.8	**2**	190.9	20.1	**2**	240.7	25.3	**2**	290.4	30.5
3	42.8	4.5	**3**	92.5	9.7	**3**	142.2	14.9	**3**	191.9	20.2	**3**	241.7	25.4	**3**	291.4	30.6
4	43.8	4.6	**4**	93.5	9.8	**4**	143.2	15.1	**4**	192.9	20.3	**4**	242.7	25.5	**4**	292.4	30.7
5	44.8	4.7	**5**	94.5	9.9	**5**	144.2	15.2	**5**	193.9	20.4	**5**	243.7	25.6	**5**	293.4	30.8
6	45.7	4.8	**6**	95.5	10.0	**6**	145.2	15.3	**6**	194.9	20.5	**6**	244.7	25.7	**6**	294.4	30.9
7	46.7	4.9	**7**	96.5	10.1	**7**	146.2	15.4	**7**	195.9	20.6	**7**	245.6	25.8	**7**	295.4	31.0
8	47.7	5.0	**8**	97.5	10.2	**8**	147.2	15.5	**8**	196.9	20.7	**8**	246.6	25.9	**8**	296.4	31.1
9	48.7	5.1	**9**	98.5	10.3	**9**	148.2	15.6	**9**	197.9	20.8	**9**	247.6	26.0	**9**	297.4	31.3
D	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ
ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap

271 276 315

269 264 225

R

089 084° 045

091 096 135

R ou φm

ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap	
D	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap
300	298.4	31.4	**350**	348.1	36.6	**400**	397.8	41.8	**450**	447.5	47.0	**500**	497.3	52.3	**550**	547.0	57.5
1	299.4	31.5	**1**	349.1	36.7	**1**	398.8	41.9	**1**	448.5	47.1	**1**	498.3	52.4	**1**	548.0	57.6
2	300.3	31.6	**2**	350.1	36.8	**2**	399.8	42.0	**2**	449.5	47.2	**2**	499.2	52.5	**2**	549.0	57.7
3	301.3	31.7	**3**	351.1	36.9	**3**	400.8	42.1	**3**	450.5	47.4	**3**	500.2	52.6	**3**	550.0	57.8
4	302.3	31.8	**4**	352.1	37.0	**4**	401.8	42.2	**4**	451.5	47.5	**4**	501.2	52.7	**4**	551.0	57.9
5	303.3	31.9	**5**	353.1	37.1	**5**	402.8	42.3	**5**	452.5	47.6	**5**	502.2	52.8	**5**	552.0	58.0
6	304.3	32.0	**6**	354.0	37.2	**6**	403.8	42.4	**6**	453.5	47.7	**6**	503.2	52.9	**6**	553.0	58.1
7	305.3	32.1	**7**	355.0	37.3	**7**	404.8	42.5	**7**	454.5	47.8	**7**	504.2	53.0	**7**	553.9	58.2
8	306.3	32.2	**8**	356.0	37.4	**8**	405.8	42.6	**8**	455.5	47.9	**8**	505.2	53.1	**8**	554.9	58.3
9	307.3	32.3	**9**	357.0	37.5	**9**	406.8	42.8	**9**	456.5	48.0	**9**	506.2	53.2	**9**	555.9	58.4
310	308.3	32.4	**360**	358.0	37.6	**410**	407.8	42.9	**460**	457.5	48.1	**510**	507.2	53.3	**560**	556.9	58.5
1	309.3	32.5	**1**	359.0	37.7	**1**	408.7	43.0	**1**	458.5	48.2	**1**	508.2	53.4	**1**	557.9	58.6
2	310.3	32.6	**2**	360.0	37.8	**2**	409.7	43.1	**2**	459.5	48.3	**2**	509.2	53.5	**2**	558.9	58.7
3	311.3	32.7	**3**	361.0	37.9	**3**	410.7	43.2	**3**	460.5	48.4	**3**	510.2	53.6	**3**	559.9	58.8
4	312.3	32.8	**4**	362.0	38.0	**4**	411.7	43.3	**4**	461.5	48.5	**4**	511.2	53.7	**4**	560.9	59.0
5	313.3	32.9	**5**	363.0	38.2	**5**	412.7	43.4	**5**	462.5	48.6	**5**	512.2	53.8	**5**	561.9	59.1
6	314.3	33.0	**6**	364.0	38.3	**6**	413.7	43.5	**6**	463.4	48.7	**6**	513.2	53.9	**6**	562.9	59.2
7	315.3	33.1	**7**	365.0	38.4	**7**	414.7	43.6	**7**	464.4	48.8	**7**	514.2	54.0	**7**	563.9	59.3
8	316.3	33.2	**8**	366.0	38.5	**8**	415.7	43.7	**8**	465.4	48.9	**8**	515.2	54.1	**8**	564.9	59.4
9	317.3	33.3	**9**	367.0	38.6	**9**	416.7	43.8	**9**	466.4	49.0	**9**	516.2	54.3	**9**	565.9	59.5
320	318.2	33.4	**370**	368.0	38.7	**420**	417.7	43.9	**470**	467.4	49.1	**520**	517.2	54.4	**570**	566.9	59.6
1	319.2	33.6	**1**	369.0	38.8	**1**	418.7	44.0	**1**	468.4	49.2	**1**	518.1	54.5	**1**	567.9	59.7
2	320.2	33.7	**2**	370.0	38.9	**2**	419.7	44.1	**2**	469.4	49.3	**2**	519.1	54.6	**2**	568.9	59.8
3	321.2	33.8	**3**	371.0	39.0	**3**	420.7	44.2	**3**	470.4	49.4	**3**	520.1	54.7	**3**	569.9	59.9
4	322.2	33.9	**4**	372.0	39.1	**4**	421.7	44.3	**4**	471.4	49.5	**4**	521.1	54.8	**4**	570.9	60.0
5	323.2	34.0	**5**	372.9	39.2	**5**	422.7	44.4	**5**	472.4	49.7	**5**	522.1	54.9	**5**	571.8	60.1
6	324.2	34.1	**6**	373.9	39.3	**6**	423.7	44.5	**6**	473.4	49.8	**6**	523.1	55.0	**6**	572.8	60.2
7	325.2	34.2	**7**	374.9	39.4	**7**	424.7	44.6	**7**	474.4	49.9	**7**	524.1	55.1	**7**	573.8	60.3
8	326.2	34.3	**8**	375.9	39.5	**8**	425.7	44.7	**8**	475.4	50.0	**8**	525.1	55.2	**8**	574.8	60.4
9	327.2	34.4	**9**	376.9	39.6	**9**	426.6	44.8	**9**	476.4	50.1	**9**	526.1	55.3	**9**	575.8	60.5
330	328.2	34.5	**380**	377.9	39.7	**430**	427.6	44.9	**480**	477.4	50.2	**530**	527.1	55.4	**580**	576.8	60.6
1	329.2	34.6	**1**	378.9	39.8	**1**	428.6	45.1	**1**	478.4	50.3	**1**	528.1	55.5	**1**	577.8	60.7
2	330.2	34.7	**2**	379.9	39.9	**2**	429.6	45.2	**2**	479.4	50.4	**2**	529.1	55.6	**2**	578.8	60.8
3	331.2	34.8	**3**	380.9	40.0	**3**	430.6	45.3	**3**	480.4	50.5	**3**	530.1	55.7	**3**	579.8	60.9
4	332.2	34.9	**4**	381.9	40.1	**4**	431.6	45.4	**4**	481.3	50.6	**4**	531.1	55.8	**4**	580.8	61.0
5	333.2	35.0	**5**	382.9	40.2	**5**	432.6	45.5	**5**	482.3	50.7	**5**	532.1	55.9	**5**	581.8	61.1
6	334.2	35.1	**6**	383.9	40.3	**6**	433.6	45.6	**6**	483.3	50.8	**6**	533.1	56.0	**6**	582.8	61.3
7	335.2	35.2	**7**	384.9	40.5	**7**	434.6	45.7	**7**	484.3	50.9	**7**	534.1	56.1	**7**	583.8	61.4
8	336.1	35.3	**8**	385.9	40.6	**8**	435.6	45.8	**8**	485.3	51.0	**8**	535.1	56.2	**8**	584.8	61.5
9	337.1	35.4	**9**	386.9	40.7	**9**	436.6	45.9	**9**	486.3	51.1	**9**	536.0	56.3	**9**	585.8	61.6
340	338.1	35.5	**390**	387.9	40.8	**440**	437.6	46.0	**490**	487.3	51.2	**540**	537.0	56.4	**590**	586.8	61.7
1	339.1	35.6	**1**	388.9	40.9	**1**	438.6	46.1	**1**	488.3	51.3	**1**	538.0	56.5	**1**	587.8	61.8
2	340.1	35.7	**2**	389.9	41.0	**2**	439.6	46.2	**2**	489.3	51.4	**2**	539.0	56.7	**2**	588.8	61.9
3	341.1	35.9	**3**	390.8	41.1	**3**	440.6	46.3	**3**	490.3	51.5	**3**	540.0	56.8	**3**	589.8	62.0
4	342.1	36.0	**4**	391.8	41.2	**4**	441.6	46.4	**4**	491.3	51.6	**4**	541.0	56.9	**4**	590.7	62.1
5	343.1	36.1	**5**	392.8	41.3	**5**	442.6	46.5	**5**	492.3	51.7	**5**	542.0	57.0	**5**	591.7	62.2
6	344.1	36.2	**6**	393.8	41.4	**6**	443.6	46.6	**6**	493.3	51.8	**6**	543.0	57.1	**6**	592.7	62.3
7	345.1	36.3	**7**	394.8	41.5	**7**	444.6	46.7	**7**	494.3	52.0	**7**	544.0	57.2	**7**	593.7	62.4
8	346.1	36.4	**8**	395.8	41.6	**8**	445.5	46.8	**8**	495.3	52.1	**8**	545.0	57.3	**8**	594.7	62.5
9	347.1	36.5	**9**	396.8	41.7	**9**	446.5	46.9	**9**	496.3	52.2	**9**	546.0	57.4	**9**	595.7	62.6
D	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ
ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap

ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap	
D	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap
0	0.0	0.0	**50**	49.6	6.1	**100**	99.3	12.2	**150**	148.9	18.3	**200**	198.5	24.4	**250**	248.1	30.5
1	1.0	0.1	**1**	50.6	6.2	**1**	100.2	12.3	**1**	149.9	18.4	**1**	199.5	24.5	**1**	249.1	30.6
2	2.0	0.2	**2**	51.6	6.3	**2**	101.2	12.4	**2**	150.9	18.5	**2**	200.5	24.6	**2**	250.1	30.7
3	3.0	0.4	**3**	52.6	6.5	**3**	102.2	12.6	**3**	151.9	18.6	**3**	201.5	24.7	**3**	251.1	30.8
4	4.0	0.5	**4**	53.6	6.6	**4**	103.2	12.7	**4**	152.9	18.8	**4**	202.5	24.9	**4**	252.1	31.0
5	5.0	0.6	**5**	54.6	6.7	**5**	104.2	12.8	**5**	153.8	18.9	**5**	203.5	25.0	**5**	253.1	31.1
6	6.0	0.7	**6**	55.6	6.8	**6**	105.2	12.9	**6**	154.8	19.0	**6**	204.5	25.1	**6**	254.1	31.2
7	6.9	0.9	**7**	56.6	6.9	**7**	106.2	13.0	**7**	155.8	19.1	**7**	205.5	25.2	**7**	255.1	31.3
8	7.9	1.0	**8**	57.6	7.1	**8**	107.2	13.2	**8**	156.8	19.3	**8**	206.4	25.3	**8**	256.1	31.4
9	8.9	1.1	**9**	58.6	7.2	**9**	108.2	13.3	**9**	157.8	19.4	**9**	207.4	25.5	**9**	257.1	31.6
10	9.9	1.2	**60**	59.6	7.3	**110**	109.2	13.4	**160**	158.8	19.5	**210**	208.4	25.6	**260**	258.1	31.7
1	10.9	1.3	**1**	60.5	7.4	**1**	110.2	13.5	**1**	159.8	19.6	**1**	209.4	25.7	**1**	259.1	31.8
2	11.9	1.5	**2**	61.5	7.6	**2**	111.2	13.6	**2**	160.8	19.7	**2**	210.4	25.8	**2**	260.0	31.9
3	12.9	1.6	**3**	62.5	7.7	**3**	112.2	13.8	**3**	161.8	19.9	**3**	211.4	26.0	**3**	261.0	32.1
4	13.9	1.7	**4**	63.5	7.8	**4**	113.2	13.9	**4**	162.8	20.0	**4**	212.4	26.1	**4**	262.0	32.2
5	14.9	1.8	**5**	64.5	7.9	**5**	114.1	14.0	**5**	163.8	20.1	**5**	213.4	26.2	**5**	263.0	32.3
6	15.9	1.9	**6**	65.5	8.0	**6**	115.1	14.1	**6**	164.8	20.2	**6**	214.4	26.3	**6**	264.0	32.4
7	16.9	2.1	**7**	66.5	8.2	**7**	116.1	14.3	**7**	165.8	20.4	**7**	215.4	26.4	**7**	265.0	32.5
8	17.9	2.2	**8**	67.5	8.3	**8**	117.1	14.4	**8**	166.7	20.5	**8**	216.4	26.6	**8**	266.0	32.7
9	18.9	2.3	**9**	68.5	8.4	**9**	118.1	14.5	**9**	167.7	20.6	**9**	217.4	26.7	**9**	267.0	32.8
20	19.9	2.4	**70**	69.5	8.5	**120**	119.1	14.6	**170**	168.7	20.7	**220**	218.4	26.8	**270**	268.0	32.9
1	20.8	2.6	**1**	70.5	8.7	**1**	120.1	14.7	**1**	169.7	20.8	**1**	219.4	26.9	**1**	269.0	33.0
2	21.8	2.7	**2**	71.5	8.8	**2**	121.1	14.9	**2**	170.7	21.0	**2**	220.3	27.1	**2**	270.0	33.1
3	22.8	2.8	**3**	72.5	8.9	**3**	122.1	15.0	**3**	171.7	21.1	**3**	221.3	27.2	**3**	271.0	33.3
4	23.8	2.9	**4**	73.4	9.0	**4**	123.1	15.1	**4**	172.7	21.2	**4**	222.3	27.3	**4**	272.0	33.4
5	24.8	3.0	**5**	74.4	9.1	**5**	124.1	15.2	**5**	173.7	21.3	**5**	223.3	27.4	**5**	272.9	33.5
6	25.8	3.2	**6**	75.4	9.3	**6**	125.1	15.4	**6**	174.7	21.4	**6**	224.3	27.5	**6**	273.9	33.6
7	26.8	3.3	**7**	76.4	9.4	**7**	126.1	15.5	**7**	175.7	21.6	**7**	225.3	27.7	**7**	274.9	33.8
8	27.8	3.4	**8**	77.4	9.5	**8**	127.0	15.6	**8**	176.7	21.7	**8**	226.3	27.8	**8**	275.9	33.9
9	28.8	3.5	**9**	78.4	9.6	**9**	128.0	15.7	**9**	177.7	21.8	**9**	227.3	27.9	**9**	276.9	34.0
30	29.8	3.7	**80**	79.4	9.7	**130**	129.0	15.8	**180**	178.7	21.9	**230**	228.3	28.0	**280**	277.9	34.1
1	30.8	3.8	**1**	80.4	9.9	**1**	130.0	16.0	**1**	179.7	22.1	**1**	229.3	28.2	**1**	278.9	34.2
2	31.8	3.9	**2**	81.4	10.0	**2**	131.0	16.1	**2**	180.6	22.2	**2**	230.3	28.3	**2**	279.9	34.4
3	32.8	4.0	**3**	82.4	10.1	**3**	132.0	16.2	**3**	181.6	22.3	**3**	231.3	28.4	**3**	280.9	34.5
4	33.7	4.1	**4**	83.4	10.2	**4**	133.0	16.3	**4**	182.6	22.4	**4**	232.3	28.5	**4**	281.9	34.6
5	34.7	4.3	**5**	84.4	10.4	**5**	134.0	16.5	**5**	183.6	22.5	**5**	233.2	28.6	**5**	282.9	34.7
6	35.7	4.4	**6**	85.4	10.5	**6**	135.0	16.6	**6**	184.6	22.7	**6**	234.2	28.8	**6**	283.9	34.9
7	36.7	4.5	**7**	86.4	10.6	**7**	136.0	16.7	**7**	185.6	22.8	**7**	235.2	28.9	**7**	284.9	35.0
8	37.7	4.6	**8**	87.3	10.7	**8**	137.0	16.8	**8**	186.6	22.9	**8**	236.2	29.0	**8**	285.9	35.1
9	38.7	4.8	**9**	88.3	10.8	**9**	138.0	16.9	**9**	187.6	23.0	**9**	237.2	29.1	**9**	286.8	35.2
40	39.7	4.9	**90**	89.3	11.0	**140**	139.0	17.1	**190**	188.6	23.2	**240**	238.2	29.2	**290**	287.8	35.3
1	40.7	5.0	**1**	90.3	11.1	**1**	139.9	17.2	**1**	189.6	23.3	**1**	239.2	29.4	**1**	288.8	35.5
2	41.7	5.1	**2**	91.3	11.2	**2**	140.9	17.3	**2**	190.6	23.4	**2**	240.2	29.5	**2**	289.8	35.6
3	42.7	5.2	**3**	92.3	11.3	**3**	141.9	17.4	**3**	191.6	23.5	**3**	241.2	29.6	**3**	290.8	35.7
4	43.7	5.4	**4**	93.3	11.5	**4**	142.9	17.5	**4**	192.6	23.6	**4**	242.2	29.7	**4**	291.8	35.8
5	44.7	5.5	**5**	94.3	11.6	**5**	143.9	17.7	**5**	193.5	23.8	**5**	243.2	29.9	**5**	292.8	36.0
6	45.7	5.6	**6**	95.3	11.7	**6**	144.9	17.8	**6**	194.5	23.9	**6**	244.2	30.0	**6**	293.8	36.1
7	46.6	5.7	**7**	96.3	11.8	**7**	145.9	17.9	**7**	195.5	24.0	**7**	245.2	30.1	**7**	294.8	36.2
8	47.6	5.8	**8**	97.3	11.9	**8**	146.9	18.0	**8**	196.5	24.1	**8**	246.2	30.2	**8**	295.8	36.3
9	48.6	6.0	**9**	98.3	12.1	**9**	147.9	18.2	**9**	197.5	24.3	**9**	247.1	30.3	**9**	296.8	36.4
D	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ
ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap

ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap	
D	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap
300	297.8	36.6	**350**	347.4	42.7	**400**	397.0	48.7	**450**	446.6	54.8	**500**	496.3	60.9	**550**	545.9	67.0
1	298.8	36.7	**1**	348.4	42.8	**1**	398.0	48.9	**1**	447.6	55.0	**1**	497.3	61.1	**1**	546.9	67.1
2	299.7	36.8	**2**	349.4	42.9	**2**	399.0	49.0	**2**	448.6	55.1	**2**	498.3	61.2	**2**	547.9	67.3
3	300.7	36.9	**3**	350.4	43.0	**3**	400.0	49.1	**3**	449.6	55.2	**3**	499.3	61.3	**3**	548.9	67.4
4	301.7	37.0	**4**	351.4	43.1	**4**	401.0	49.2	**4**	450.6	55.3	**4**	500.2	61.4	**4**	549.9	67.5
5	302.7	37.2	**5**	352.4	43.3	**5**	402.0	49.4	**5**	451.6	55.5	**5**	501.2	61.5	**5**	550.9	67.6
6	303.7	37.3	**6**	353.3	43.4	**6**	403.0	49.5	**6**	452.6	55.6	**6**	502.2	61.7	**6**	551.9	67.8
7	304.7	37.4	**7**	354.3	43.5	**7**	404.0	49.6	**7**	453.6	55.7	**7**	503.2	61.8	**7**	552.8	67.9
8	305.7	37.5	**8**	355.3	43.6	**8**	405.0	49.7	**8**	454.6	55.8	**8**	504.2	61.9	**8**	553.8	68.0
9	306.7	37.7	**9**	356.3	43.8	**9**	406.0	49.8	**9**	455.6	55.9	**9**	505.2	62.0	**9**	554.8	68.1
310	307.7	37.8	**360**	357.3	43.9	**410**	406.9	50.0	**460**	456.6	56.1	**510**	506.2	62.2	**560**	555.8	68.2
1	308.7	37.9	**1**	358.3	44.0	**1**	407.9	50.1	**1**	457.6	56.2	**1**	507.2	62.3	**1**	556.8	68.4
2	309.7	38.0	**2**	359.3	44.1	**2**	408.9	50.2	**2**	458.6	56.3	**2**	508.2	62.4	**2**	557.8	68.5
3	310.7	38.1	**3**	360.3	44.2	**3**	409.9	50.3	**3**	459.5	56.4	**3**	509.2	62.5	**3**	558.8	68.6
4	311.7	38.3	**4**	361.3	44.4	**4**	410.9	50.5	**4**	460.5	56.5	**4**	510.2	62.6	**4**	559.8	68.7
5	312.7	38.4	**5**	362.3	44.5	**5**	411.9	50.6	**5**	461.5	56.7	**5**	511.2	62.8	**5**	560.8	68.9
6	313.6	38.5	**6**	363.3	44.6	**6**	412.9	50.7	**6**	462.5	56.8	**6**	512.2	62.9	**6**	561.8	69.0
7	314.6	38.6	**7**	364.3	44.7	**7**	413.9	50.8	**7**	463.5	56.9	**7**	513.1	63.0	**7**	562.8	69.1
8	315.6	38.8	**8**	365.3	44.8	**8**	414.9	50.9	**8**	464.5	57.0	**8**	514.1	63.1	**8**	563.8	69.2
9	316.6	38.9	**9**	366.2	45.0	**9**	415.9	51.1	**9**	465.5	57.2	**9**	515.1	63.3	**9**	564.8	69.3
320	317.6	39.0	**370**	367.2	45.1	**420**	416.9	51.2	**470**	466.5	57.3	**520**	516.1	63.4	**570**	565.8	69.5
1	318.6	39.1	**1**	368.2	45.2	**1**	417.9	51.3	**1**	467.5	57.4	**1**	517.1	63.5	**1**	566.7	69.6
2	319.6	39.2	**2**	369.2	45.3	**2**	418.9	51.4	**2**	468.5	57.5	**2**	518.1	63.6	**2**	567.7	69.7
3	320.6	39.4	**3**	370.2	45.5	**3**	419.8	51.6	**3**	469.5	57.6	**3**	519.1	63.7	**3**	568.7	69.8
4	321.6	39.5	**4**	371.2	45.6	**4**	420.8	51.7	**4**	470.5	57.8	**4**	520.1	63.9	**4**	569.7	70.0
5	322.6	39.6	**5**	372.2	45.7	**5**	421.8	51.8	**5**	471.5	57.9	**5**	521.1	64.0	**5**	570.7	70.1
6	323.6	39.7	**6**	373.2	45.8	**6**	422.8	51.9	**6**	472.5	58.0	**6**	522.1	64.1	**6**	571.7	70.2
7	324.6	39.9	**7**	374.2	45.9	**7**	423.8	52.0	**7**	473.4	58.1	**7**	523.1	64.2	**7**	572.7	70.3
8	325.6	40.0	**8**	375.2	46.1	**8**	424.8	52.2	**8**	474.4	58.3	**8**	524.1	64.3	**8**	573.7	70.4
9	326.5	40.1	**9**	376.2	46.2	**9**	425.8	52.3	**9**	475.4	58.4	**9**	525.1	64.5	**9**	574.7	70.6
330	327.5	40.2	**380**	377.2	46.3	**430**	426.8	52.4	**480**	476.4	58.5	**530**	526.0	64.6	**580**	575.7	70.7
1	328.5	40.3	**1**	378.2	46.4	**1**	427.8	52.5	**1**	477.4	58.6	**1**	527.0	64.7	**1**	576.7	70.8
2	329.5	40.5	**2**	379.2	46.6	**2**	428.8	52.6	**2**	478.4	58.7	**2**	528.0	64.8	**2**	577.7	70.9
3	330.5	40.6	**3**	380.1	46.7	**3**	429.8	52.8	**3**	479.4	58.9	**3**	529.0	65.0	**3**	578.7	71.0
4	331.5	40.7	**4**	381.1	46.8	**4**	430.8	52.9	**4**	480.4	59.0	**4**	530.0	65.1	**4**	579.6	71.2
5	332.5	40.8	**5**	382.1	46.9	**5**	431.8	53.0	**5**	481.4	59.1	**5**	531.0	65.2	**5**	580.6	71.3
6	333.5	40.9	**6**	383.1	47.0	**6**	432.8	53.1	**6**	482.4	59.2	**6**	532.0	65.3	**6**	581.6	71.4
7	334.5	41.1	**7**	384.1	47.2	**7**	433.7	53.3	**7**	483.4	59.4	**7**	533.0	65.4	**7**	582.6	71.5
8	335.5	41.2	**8**	385.1	47.3	**8**	434.7	53.4	**8**	484.4	59.5	**8**	534.0	65.6	**8**	583.6	71.7
9	336.5	41.3	**9**	386.1	47.4	**9**	435.7	53.5	**9**	485.4	59.6	**9**	535.0	65.7	**9**	584.6	71.8
340	337.5	41.4	**390**	387.1	47.5	**440**	436.7	53.6	**490**	486.3	59.7	**540**	536.0	65.8	**590**	585.6	71.9
1	338.5	41.6	**1**	388.1	47.7	**1**	437.7	53.7	**1**	487.3	59.8	**1**	537.0	65.9	**1**	586.6	72.0
2	339.5	41.7	**2**	389.1	47.8	**2**	438.7	53.9	**2**	488.3	60.0	**2**	538.0	66.1	**2**	587.6	72.1
3	340.4	41.8	**3**	390.1	47.9	**3**	439.7	54.0	**3**	489.3	60.1	**3**	539.0	66.2	**3**	588.6	72.3
4	341.4	41.9	**4**	391.1	48.0	**4**	440.7	54.1	**4**	490.3	60.2	**4**	539.9	66.3	**4**	589.6	72.4
5	342.4	42.0	**5**	392.1	48.1	**5**	441.7	54.2	**5**	491.3	60.3	**5**	540.9	66.4	**5**	590.6	72.5
6	343.4	42.2	**6**	393.0	48.3	**6**	442.7	54.4	**6**	492.3	60.4	**6**	541.9	66.5	**6**	591.6	72.6
7	344.4	42.3	**7**	394.0	48.4	**7**	443.7	54.5	**7**	493.3	60.6	**7**	542.9	66.7	**7**	592.6	72.8
8	345.4	42.4	**8**	395.0	48.5	**8**	444.7	54.6	**8**	494.3	60.7	**8**	543.9	66.8	**8**	593.5	72.9
9	346.4	42.5	**9**	396.0	48.6	**9**	445.7	54.7	**9**	495.3	60.8	**9**	544.9	66.9	**9**	594.5	73.0
D	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ
ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap

ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap	
D	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap
0	0.0	0.0	**50**	49.5	7.0	**100**	99.0	13.9	**150**	148.5	20.9	**200**	198.1	27.8	**250**	247.6	34.8
1	1.0	0.1	**1**	50.5	7.1	**1**	100.0	14.1	**1**	149.5	21.0	**1**	199.0	28.0	**1**	248.6	34.9
2	2.0	0.3	**2**	51.5	7.2	**2**	101.0	14.2	**2**	150.5	21.2	**2**	200.0	28.1	**2**	249.5	35.1
3	3.0	0.4	**3**	52.5	7.4	**3**	102.0	14.3	**3**	151.5	21.3	**3**	201.0	28.3	**3**	250.5	35.2
4	4.0	0.6	**4**	53.5	7.5	**4**	103.0	14.5	**4**	152.5	21.4	**4**	202.0	28.4	**4**	251.5	35.3
5	5.0	0.7	**5**	54.5	7.7	**5**	104.0	14.6	**5**	153.5	21.6	**5**	203.0	28.5	**5**	252.5	35.5
6	5.9	0.8	**6**	55.5	7.8	**6**	105.0	14.8	**6**	154.5	21.7	**6**	204.0	28.7	**6**	253.5	35.6
7	6.9	1.0	**7**	56.4	7.9	**7**	106.0	14.9	**7**	155.5	21.9	**7**	205.0	28.8	**7**	254.5	35.8
8	7.9	1.1	**8**	57.4	8.1	**8**	106.9	15.0	**8**	156.5	22.0	**8**	206.0	28.9	**8**	255.5	35.9
9	8.9	1.3	**9**	58.4	8.2	**9**	107.9	15.2	**9**	157.5	22.1	**9**	207.0	29.1	**9**	256.5	36.0
10	9.9	1.4	**60**	59.4	8.4	**110**	108.9	15.3	**160**	158.4	22.3	**210**	208.0	29.2	**260**	257.5	36.2
1	10.9	1.5	**1**	60.4	8.5	**1**	109.9	15.4	**1**	159.4	22.4	**1**	208.9	29.4	**1**	258.5	36.3
2	11.9	1.7	**2**	61.4	8.6	**2**	110.9	15.6	**2**	160.4	22.5	**2**	209.9	29.5	**2**	259.5	36.5
3	12.9	1.8	**3**	62.4	8.8	**3**	111.9	15.7	**3**	161.4	22.7	**3**	210.9	29.6	**3**	260.4	36.6
4	13.9	1.9	**4**	63.4	8.9	**4**	112.9	15.9	**4**	162.4	22.8	**4**	211.9	29.8	**4**	261.4	36.7
5	14.9	2.1	**5**	64.4	9.0	**5**	113.9	16.0	**5**	163.4	23.0	**5**	212.9	29.9	**5**	262.4	36.9
6	15.8	2.2	**6**	65.4	9.2	**6**	114.9	16.1	**6**	164.4	23.1	**6**	213.9	30.1	**6**	263.4	37.0
7	16.8	2.4	**7**	66.3	9.3	**7**	115.9	16.3	**7**	165.4	23.2	**7**	214.9	30.2	**7**	264.4	37.2
8	17.8	2.5	**8**	67.3	9.5	**8**	116.9	16.4	**8**	166.4	23.4	**8**	215.9	30.3	**8**	265.4	37.3
9	18.8	2.6	**9**	68.3	9.6	**9**	117.8	16.6	**9**	167.4	23.5	**9**	216.9	30.5	**9**	266.4	37.4
20	19.8	2.8	**70**	69.3	9.7	**120**	118.8	16.7	**170**	168.3	23.7	**220**	217.9	30.6	**270**	267.4	37.6
1	20.8	2.9	**1**	70.3	9.9	**1**	119.8	16.8	**1**	169.3	23.8	**1**	218.8	30.8	**1**	268.4	37.7
2	21.8	3.1	**2**	71.3	10.0	**2**	120.8	17.0	**2**	170.3	23.9	**2**	219.8	30.9	**2**	269.4	37.9
3	22.8	3.2	**3**	72.3	10.2	**3**	121.8	17.1	**3**	171.3	24.1	**3**	220.8	31.0	**3**	270.3	38.0
4	23.8	3.3	**4**	73.3	10.3	**4**	122.8	17.3	**4**	172.3	24.2	**4**	221.8	31.2	**4**	271.3	38.1
5	24.8	3.5	**5**	74.3	10.4	**5**	123.8	17.4	**5**	173.3	24.4	**5**	222.8	31.3	**5**	272.3	38.3
6	25.7	3.6	**6**	75.3	10.6	**6**	124.8	17.5	**6**	174.3	24.5	**6**	223.8	31.5	**6**	273.3	38.4
7	26.7	3.8	**7**	76.3	10.7	**7**	125.8	17.7	**7**	175.3	24.6	**7**	224.8	31.6	**7**	274.3	38.6
8	27.7	3.9	**8**	77.2	10.9	**8**	126.8	17.8	**8**	176.3	24.8	**8**	225.8	31.7	**8**	275.3	38.7
9	28.7	4.0	**9**	78.2	11.0	**9**	127.7	18.0	**9**	177.3	24.9	**9**	226.8	31.9	**9**	276.3	38.8
30	29.7	4.2	**80**	79.2	11.1	**130**	128.7	18.1	**180**	178.2	25.1	**230**	227.8	32.0	**280**	277.3	39.0
1	30.7	4.3	**1**	80.2	11.3	**1**	129.7	18.2	**1**	179.2	25.2	**1**	228.8	32.1	**1**	278.3	39.1
2	31.7	4.5	**2**	81.2	11.4	**2**	130.7	18.4	**2**	180.2	25.3	**2**	229.7	32.3	**2**	279.3	39.2
3	32.7	4.6	**3**	82.2	11.6	**3**	131.7	18.5	**3**	181.2	25.5	**3**	230.7	32.4	**3**	280.2	39.4
4	33.7	4.7	**4**	83.2	11.7	**4**	132.7	18.6	**4**	182.2	25.6	**4**	231.7	32.6	**4**	281.2	39.5
5	34.7	4.9	**5**	84.2	11.8	**5**	133.7	18.8	**5**	183.2	25.7	**5**	232.7	32.7	**5**	282.2	39.7
6	35.6	5.0	**6**	85.2	12.0	**6**	134.7	18.9	**6**	184.2	25.9	**6**	233.7	32.8	**6**	283.2	39.8
7	36.6	5.1	**7**	86.2	12.1	**7**	135.7	19.1	**7**	185.2	26.0	**7**	234.7	33.0	**7**	284.2	39.9
8	37.6	5.3	**8**	87.1	12.2	**8**	136.7	19.2	**8**	186.2	26.2	**8**	235.7	33.1	**8**	285.2	40.1
9	38.6	5.4	**9**	88.1	12.4	**9**	137.6	19.3	**9**	187.2	26.3	**9**	236.7	33.3	**9**	286.2	40.2
40	39.6	5.6	**90**	89.1	12.5	**140**	138.6	19.5	**190**	188.2	26.4	**240**	237.7	33.4	**290**	287.2	40.4
1	40.6	5.7	**1**	90.1	12.7	**1**	139.6	19.6	**1**	189.1	26.6	**1**	238.7	33.5	**1**	288.2	40.5
2	41.6	5.8	**2**	91.1	12.8	**2**	140.6	19.8	**2**	190.1	26.7	**2**	239.6	33.7	**2**	289.2	40.6
3	42.6	6.0	**3**	92.1	12.9	**3**	141.6	19.9	**3**	191.1	26.9	**3**	240.6	33.8	**3**	290.1	40.8
4	43.6	6.1	**4**	93.1	13.1	**4**	142.6	20.0	**4**	192.1	27.0	**4**	241.6	34.0	**4**	291.1	40.9
5	44.6	6.3	**5**	94.1	13.2	**5**	143.6	20.2	**5**	193.1	27.1	**5**	242.6	34.1	**5**	292.1	41.1
6	45.6	6.4	**6**	95.1	13.4	**6**	144.6	20.3	**6**	194.1	27.3	**6**	243.6	34.2	**6**	293.1	41.2
7	46.5	6.5	**7**	96.1	13.5	**7**	145.6	20.5	**7**	195.1	27.4	**7**	244.6	34.4	**7**	294.1	41.3
8	47.5	6.7	**8**	97.0	13.6	**8**	146.6	20.6	**8**	196.1	27.6	**8**	245.6	34.5	**8**	295.1	41.5
9	48.5	6.8	**9**	98.0	13.8	**9**	147.5	20.7	**9**	197.1	27.7	**9**	246.6	34.7	**9**	296.1	41.6
D	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ
ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap

ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap	
D	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap
300	297.1	41.8	**350**	346.6	48.7	**400**	396.1	55.7	**450**	445.6	62.6	**500**	495.1	69.6	**550**	544.6	76.5
1	298.1	41.9	**1**	347.6	48.8	**1**	397.1	55.8	**1**	446.6	62.8	**1**	496.1	69.7	**1**	545.6	76.7
2	299.1	42.0	**2**	348.6	49.0	**2**	398.1	55.9	**2**	447.6	62.9	**2**	497.1	69.9	**2**	546.6	76.8
3	300.1	42.2	**3**	349.6	49.1	**3**	399.1	56.1	**3**	448.6	63.0	**3**	498.1	70.0	**3**	547.6	77.0
4	301.0	42.3	**4**	350.6	49.3	**4**	400.1	56.2	**4**	449.6	63.2	**4**	499.1	70.1	**4**	548.6	77.1
5	302.0	42.4	**5**	351.5	49.4	**5**	401.1	56.4	**5**	450.6	63.3	**5**	500.1	70.3	**5**	549.6	77.2
6	303.0	42.6	**6**	352.5	49.5	**6**	402.0	**56**.5	**6**	451.6	63.5	**6**	501.1	70.4	**6**	550.6	77.4
7	304.0	42.7	**7**	353.5	49.7	**7**	403.0	56.6	**7**	452.6	63.6	**7**	502.1	70.6	**7**	551.6	77.5
8	305.0	42.9	**8**	354.5	49.8	**8**	404.0	56.8	**8**	453.5	63.7	**8**	503.1	70.7	**8**	552.6	77.7
9	306.0	43.0	**9**	355.5	50.0	**9**	405.0	56.9	**9**	454.5	63.9	**9**	504.0	70.8	**9**	553.6	77.8
310	307.0	43.1	**360**	356.5	50.1	**410**	406.0	57.1	**460**	455.5	64.0	**510**	505.0	71.0	**560**	554.6	77.9
1	308.0	43.3	**1**	357.5	50.2	**1**	407.0	57.2	**1**	456.5	64.2	**1**	506.0	71.1	**1**	555.5	78.1
2	309.0	43.4	**2**	358.5	50.4	**2**	408.0	57.3	**2**	457.5	64.3	**2**	507.0	71.3	**2**	556.5	78.2
3	310.0	43.6	**3**	359.5	50.5	**3**	409.0	57.5	**3**	458.5	64.4	**3**	508.0	71.4	**3**	557.5	78.4
4	310.9	43.7	**4**	360.5	50.7	**4**	410.0	57.6	**4**	459.5	64.6	**4**	509.0	71.5	**4**	558.5	78.5
5	311.9	43.8	**5**	361.4	50.8	**5**	411.0	57.8	**5**	460.5	64.7	**5**	510.0	71.7	**5**	559.5	78.6
6	312.9	44.0	**6**	362.4	50.9	**6**	412.0	57.9	**6**	461.5	64.9	**6**	511.0	71.8	**6**	560.5	78.8
7	313.9	44.1	**7**	363.4	51.1	**7**	412.9	58.0	**7**	462.5	65.0	**7**	512.0	72.0	**7**	561.5	78.9
8	314.9	44.3	**8**	364.4	51.2	**8**	413.9	58.2	**8**	463.4	65.1	**8**	513.0	72.1	**8**	562.5	79.1
9	315.9	44.4	**9**	365.4	51.4	**9**	414.9	58.3	**9**	464.4	65.3	**9**	513.9	72.2	**9**	563.5	79.2
320	316.9	44.5	**370**	366.4	51.5	**420**	415.9	58.5	**470**	465.4	65.4	**520**	514.9	72.4	**570**	564.5	79.3
1	317.9	44.7	**1**	367.4	51.6	**1**	416.9	58.6	**1**	466.4	65.6	**1**	515.9	72.5	**1**	565.4	79.5
2	318.9	44.8	**2**	368.4	51.8	**2**	417.9	58.7	**2**	467.4	65.7	**2**	516.9	72.6	**2**	566.4	79.6
3	319.9	45.0	**3**	369.4	51.9	**3**	418.9	58.9	**3**	468.4	65.8	**3**	517.9	72.8	**3**	567.4	79.7
4	320.8	45.1	**4**	370.4	52.1	**4**	419.9	59.0	**4**	469.4	66.0	**4**	518.9	72.9	**4**	568.4	79.9
5	321.8	45.2	**5**	371.4	52.2	**5**	420.9	59.1	**5**	470.4	66.1	**5**	519.9	73.1	**5**	569.4	80.0
6	322.8	45.4	**6**	372.3	52.3	**6**	421.9	59.3	**6**	471.4	66.2	**6**	520.9	73.2	**6**	570.4	80.2
7	323.8	45.5	**7**	373.3	52.5	**7**	422.8	59.4	**7**	472.4	66.4	**7**	521.9	73.3	**7**	571.4	80.3
8	324.8	45.6	**8**	374.3	52.6	**8**	423.8	59.6	**8**	473.3	66.5	**8**	522.9	73.5	**8**	572.4	80.4
9	325.8	45.8	**9**	375.3	52.7	**9**	424.8	59.7	**9**	474.3	66.7	**9**	523.9	73.6	**9**	573.4	80.6
330	326.8	45.9	**380**	376.3	52.9	**430**	425.8	59.8	**480**	475.3	66.8	**530**	524.8	73.8	**580**	574.4	80.7
1	327.8	46.1	**1**	377.3	53.0	**1**	426.8	60.0	**1**	476.3	66.9	**1**	525.8	73.9	**1**	575.3	80.9
2	328.8	46.2	**2**	378.3	53.2	**2**	427.8	60.1	**2**	477.3	67.1	**2**	526.8	74.0	**2**	576.3	81.0
3	329.8	46.3	**3**	379.3	53.3	**3**	428.8	60.3	**3**	478.3	**67**.2	**3**	527.8	74.2	**3**	577.3	81.1
4	330.7	46.5	**4**	380.3	53.4	**4**	429.8	60.4	**4**	479.3	67.4	**4**	528.8	74.3	**4**	578.3	81.3
5	331.7	46.6	**5**	381.3	53.6	**5**	430.8	60.5	**5**	480.3	67.5	**5**	529.8	74.5	**5**	579.3	81.4
6	332.7	46.8	**6**	382.2	53.7	**6**	431.8	60.7	**6**	481.3	67.6	**6**	530.8	74.6	**6**	580.3	81.6
7	333.7	46.9	**7**	383.2	53.9	**7**	432.7	60.8	**7**	482.3	67.8	**7**	531.8	74.7	**7**	581.3	81.7
8	334.7	47.0	**8**	384.2	54.0	**8**	433.7	61.0	**8**	483.3	67.9	**8**	532.8	74.9	**8**	582.3	81.8
9	335.7	47.2	**9**	385.2	54.1	**9**	434.7	61.1	**9**	484.2	68.1	**9**	533.8	75.0	**9**	583.3	82.0
340	336.7	47.3	**390**	386.2	54.3	**440**	435.7	61.2	**490**	485.2	68.2	**540**	534.7	75.2	**590**	584.3	82.1
1	337.7	47.5	**1**	387.2	54.4	**1**	436.7	61.4	**1**	486.2	68.3	**1**	535.7	75.3	**1**	585.2	82.3
2	338.7	47.6	**2**	388.2	54.6	**2**	437.7	61.5	**2**	487.2	68.5	**2**	536.7	75.4	**2**	586.2	82.4
3	339.7	47.7	**3**	389.2	54.7	**3**	438.7	61.7	**3**	488.2	68.6	**3**	537.7	75.6	**3**	587.2	82.5
4	340.7	47.9	**4**	390.2	54.8	**4**	439.7	61.8	**4**	489.2	68.8	**4**	538.7	75.7	**4**	588.2	82.7
5	341.6	48.0	**5**	391.2	55.0	**5**	440.7	61.9	**5**	490.2	68.9	**5**	539.7	75.8	**5**	589.2	82.8
6	342.6	48.2	**6**	392.1	55.1	**6**	441.7	62.1	**6**	491.2	69.0	**6**	540.7	76.0	**6**	590.2	82.9
7	343.6	48.3	**7**	393.1	55.3	**7**	442.6	62.2	**7**	492.2	69.2	**7**	541.7	76.1	**7**	591.2	83.1
8	344.6	48.4	**8**	394.1	55.4	**8**	443.6	62.3	**8**	493.2	69.3	**8**	542.7	76.3	**8**	592.2	83.2
9	345.6	48.6	**9**	395.1	55.5	**9**	444.6	62.5	**9**	494.1	69.4	**9**	543.7	76.4	**9**	593.2	83.4
D	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ
ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap

ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap	
D	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap
0	0.0	0.0	**50**	49.4	7.8	**100**	98.8	15.6	**150**	148.2	23.5	**200**	197.5	31.3	**250**	246.9	39.1
1	1.0	0.2	**1**	50.4	8.0	**1**	99.8	15.8	**1**	149.1	23.6	**1**	198.5	31.4	**1**	247.9	39.3
2	2.0	0.3	**2**	51.4	8.1	**2**	100.7	16.0	**2**	150.1	23.8	**2**	199.5	31.6	**2**	248.9	39.4
3	3.0	0.5	**3**	52.3	8.3	**3**	101.7	16.1	**3**	151.1	23.9	**3**	200.5	31.8	**3**	249.9	39.6
4	4.0	0.6	**4**	53.3	8.4	**4**	102.7	16.3	**4**	152.1	24.1	**4**	201.5	31.9	**4**	250.9	39.7
5	4.9	0.8	**5**	54.3	8.6	**5**	103.7	16.4	**5**	153.1	24.2	**5**	202.5	32.1	**5**	251.9	39.9
6	5.9	0.9	**6**	55.3	8.8	**6**	104.7	16.6	**6**	154.1	24.4	**6**	203.5	32.2	**6**	252.8	40.0
7	6.9	1.1	**7**	56.3	8.9	**7**	105.7	16.7	**7**	155.1	24.6	**7**	204.5	32.4	**7**	253.8	40.2
8	7.9	1.3	**8**	57.3	9.1	**8**	106.7	16.9	**8**	156.1	24.7	**8**	205.4	32.5	**8**	254.8	40.4
9	8.9	1.4	**9**	58.3	9.2	**9**	107.7	17.1	**9**	157.0	24.9	**9**	206.4	32.7	**9**	255.8	40.5
10	9.9	1.6	**60**	59.3	9.4	**110**	108.6	17.2	**160**	158.0	25.0	**210**	207.4	32.9	**260**	256.8	40.7
1	10.9	1.7	**1**	60.2	9.5	**1**	109.6	17.4	**1**	159.0	25.2	**1**	208.4	33.0	**1**	257.8	40.8
2	11.9	1.9	**2**	61.2	9.7	**2**	110.6	17.5	**2**	160.0	25.3	**2**	209.4	33.2	**2**	258.8	41.0
3	12.8	2.0	**3**	62.2	9.9	**3**	111.6	17.7	**3**	161.0	25.5	**3**	210.4	33.3	**3**	259.8	41.1
4	13.8	2.2	**4**	63.2	10.0	**4**	112.6	17.8	**4**	162.0	25.7	**4**	211.4	33.5	**4**	260.7	41.3
5	14.8	2.3	**5**	64.2	10.2	**5**	113.6	18.0	**5**	163.0	25.8	**5**	212.4	33.6	**5**	261.7	41.5
6	15.8	2.5	**6**	65.2	10.3	**6**	114.6	18.1	**6**	164.0	26.0	**6**	213.3	33.8	**6**	262.7	41.6
7	16.8	2.7	**7**	66.2	10.5	**7**	115.6	18.3	**7**	164.9	26.1	**7**	214.3	33.9	**7**	263.7	41.8
8	17.8	2.8	**8**	67.2	10.6	**8**	116.5	18.5	**8**	165.9	26.3	**8**	215.3	34.1	**8**	264.7	41.9
9	18.8	3.0	**9**	68.2	10.8	**9**	117.5	18.6	**9**	166.9	26.4	**9**	216.3	34.3	**9**	265.7	42.1
20	19.8	3.1	**70**	69.1	11.0	**120**	118.5	18.8	**170**	167.9	26.6	**220**	217.3	34.4	**270**	266.7	42.2
1	20.7	3.3	**1**	70.1	11.1	**1**	119.5	18.9	**1**	168.9	26.8	**1**	218.3	34.6	**1**	267.7	42.4
2	21.7	3.4	**2**	71.1	11.3	**2**	120.5	19.1	**2**	169.9	26.9	**2**	219.3	34.7	**2**	268.7	42.6
3	22.7	3.6	**3**	72.1	11.4	**3**	121.5	19.2	**3**	170.9	27.1	**3**	220.3	34.9	**3**	269.6	42.7
4	23.7	3.8	**4**	73.1	11.6	**4**	122.5	19.4	**4**	171.9	27.2	**4**	221.2	35.0	**4**	270.6	42.9
5	24.7	3.9	**5**	74.1	11.7	**5**	123.5	19.6	**5**	172.8	27.4	**5**	222.2	35.2	**5**	271.6	43.0
6	25.7	4.1	**6**	75.1	11.9	**6**	124.4	19.7	**6**	173.8	27.5	**6**	223.2	35.4	**6**	272.6	43.2
7	26.7	4.2	**7**	76.1	12.0	**7**	125.4	19.9	**7**	174.8	27.7	**7**	224.2	35.5	**7**	273.6	43.3
8	27.7	4.4	**8**	77.0	12.2	**8**	126.4	20.0	**8**	175.8	27.8	**8**	225.2	35.7	**8**	274.6	43.5
9	28.6	4.5	**9**	78.0	12.4	**9**	127.4	20.2	**9**	176.8	28.0	**9**	226.2	35.8	**9**	275.6	43.6
30	29.6	4.7	**80**	79.0	12.5	**130**	128.4	20.3	**180**	177.8	28.2	**230**	227.2	36.0	**280**	276.6	43.8
1	30.6	4.8	**1**	80.0	12.7	**1**	129.4	20.5	**1**	178.8	28.3	**1**	228.2	36.1	**1**	277.5	44.0
2	31.6	5.0	**2**	81.0	12.8	**2**	130.4	20.6	**2**	179.8	28.5	**2**	229.1	36.3	**2**	278.5	44.1
3	32.6	5.2	**3**	82.0	13.0	**3**	131.4	20.8	**3**	180.7	28.6	**3**	230.1	36.4	**3**	279.5	44.3
4	33.6	5.3	**4**	83.0	13.1	**4**	132.4	21.0	**4**	181.7	28.8	**4**	231.1	36.6	**4**	280.5	44.4
5	34.6	5.5	**5**	84.0	13.3	**5**	133.3	21.1	**5**	182.7	28.9	**5**	232.1	36.8	**5**	281.5	44.6
6	35.6	5.6	**6**	84.9	13.5	**6**	134.3	21.3	**6**	183.7	29.1	**6**	233.1	36.9	**6**	282.5	44.7
7	36.5	5.8	**7**	85.9	13.6	**7**	135.3	21.4	**7**	184.7	29.3	**7**	234.1	37.1	**7**	283.5	44.9
8	37.5	5.9	**8**	86.9	13.8	**8**	136.3	21.6	**8**	185.7	29.4	**8**	235.1	37.2	**8**	284.5	45.1
9	38.5	6.1	**9**	87.9	13.9	**9**	137.3	21.7	**9**	186.7	29.6	**9**	236.1	37.4	**9**	285.4	45.2
40	39.5	6.3	**90**	88.9	14.1	**140**	138.3	21.9	**190**	187.7	29.7	**240**	237.0	37.5	**290**	286.4	45.4
1	40.5	6.4	**1**	89.9	14.2	**1**	139.3	22.1	**1**	188.6	29.9	**1**	238.0	37.7	**1**	287.4	45.5
2	41.5	6.6	**2**	90.9	14.4	**2**	140.3	22.2	**2**	189.6	30.0	**2**	239.0	37.9	**2**	288.4	45.7
3	42.5	6.7	**3**	91.9	14.5	**3**	141.2	22.4	**3**	190.6	30.2	**3**	240.0	38.0	**3**	289.4	45.8
4	43.5	6.9	**4**	92.8	14.7	**4**	142.2	22.5	**4**	191.6	30.3	**4**	241.0	38.2	**4**	290.4	46.0
5	44.4	7.0	**5**	93.8	14.9	**5**	143.2	22.7	**5**	192.6	30.5	**5**	242.0	38.3	**5**	291.4	46.1
6	45.4	7.2	**6**	94.8	15.0	**6**	144.2	22.8	**6**	193.6	30.7	**6**	243.0	38.5	**6**	292.4	46.3
7	46.4	7.4	**7**	95.8	15.2	**7**	145.2	23.0	**7**	194.6	30.8	**7**	244.0	38.6	**7**	293.3	46.5
8	47.4	7.5	**8**	96.8	15.3	**8**	146.2	23.2	**8**	195.6	31.0	**8**	244.9	38.8	**8**	294.3	46.6
9	48.4	7.7	**9**	97.8	15.5	**9**	147.2	23.3	**9**	196.5	31.1	**9**	245.9	39.0	**9**	295.3	46.8
D	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ
ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap

ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap	
D	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap
300	296.3	46.9	**350**	345.7	54.8	**400**	395.1	62.6	**450**	444.5	70.4	**500**	493.8	78.2	**550**	543.2	86.0
1	297.3	47.1	**1**	346.7	54.9	**1**	396.1	62.7	**1**	445.4	70.6	**1**	494.8	78.4	**1**	544.2	86.2
2	298.3	47.2	**2**	347.7	55.1	**2**	397.1	62.9	**2**	446.4	70.7	**2**	495.8	78.5	**2**	545.2	86.4
3	299.3	47.4	**3**	348.7	55.2	**3**	398.0	63.0	**3**	447.4	70.9	**3**	496.8	78.7	**3**	546.2	86.5
4	300.3	47.6	**4**	349.6	55.4	**4**	399.0	63.2	**4**	448.4	71.0	**4**	497.8	78.8	**4**	547.2	86.7
5	301.2	47.7	**5**	350.6	55.5	**5**	400.0	63.4	**5**	449.4	71.2	**5**	498.8	79.0	**5**	548.2	86.8
6	302.2	47.9	**6**	351.6	55.7	**6**	401.0	63.5	**6**	450.4	71.3	**6**	499.8	79.2	**6**	549.2	87.0
7	303.2	48.0	**7**	352.6	55.8	**7**	402.0	63.7	**7**	451.4	71.5	**7**	500.8	79.3	**7**	550.1	87.1
8	304.2	48.2	**8**	353.6	56.0	**8**	403.0	63.8	**8**	452.4	71.6	**8**	501.7	79.5	**8**	551.1	87.3
9	305.2	48.3	**9**	354.6	56.2	**9**	404.0	64.0	**9**	453.3	71.8	**9**	502.7	79.6	**9**	552.1	87.4
310	306.2	48.5	**360**	355.6	56.3	**410**	405.0	64.1	**460**	454.3	72.0	**510**	503.7	79.8	**560**	553.1	87.6
1	307.2	48.7	**1**	356.6	56.5	**1**	405.9	64.3	**1**	455.3	72.1	**1**	504.7	79.9	**1**	554.1	87.8
2	308.2	48.8	**2**	357.5	56.6	**2**	406.9	64.5	**2**	456.3	72.3	**2**	505.7	80.1	**2**	555.1	87.9
3	309.1	49.0	**3**	358.5	56.8	**3**	407.9	64.6	**3**	457.3	72.4	**3**	506.7	80.3	**3**	556.1	88.1
4	310.1	49.1	**4**	359.5	56.9	**4**	408.9	64.8	**4**	458.3	72.6	**4**	507.7	80.4	**4**	557.1	88.2
5	311.1	49.3	**5**	360.5	57.1	**5**	409.9	64.9	**5**	459.3	72.7	**5**	508.7	80.6	**5**	558.0	88.4
6	312.1	49.4	**6**	361.5	57.3	**6**	410.9	65.1	**6**	460.3	72.9	**6**	509.6	80.7	**6**	559.0	88.5
7	313.1	49.6	**7**	362.5	57.4	**7**	411.9	65.2	**7**	461.3	73.1	**7**	510.6	80.9	**7**	560.0	88.7
8	314.1	49.7	**8**	363.5	57.6	**8**	412.9	65.4	**8**	462.2	73.2	**8**	511.6	81.0	**8**	561.0	88.9
9	315.1	49.9	**9**	364.5	57.7	**9**	413.8	65.5	**9**	463.2	73.4	**9**	512.6	81.2	**9**	562.0	89.0
320	316.1	50.1	**370**	365.4	57.9	**420**	414.8	65.7	**470**	464.2	73.5	**520**	513.6	81.3	**570**	563.0	89.2
1	317.0	50.2	**1**	366.4	58.0	**1**	415.8	65.9	**1**	465.2	73.7	**1**	514.6	81.5	**1**	564.0	89.3
2	318.0	50.4	**2**	367.4	58.2	**2**	416.8	66.0	**2**	466.2	73.8	**2**	515.6	81.7	**2**	565.0	89.5
3	319.0	50.5	**3**	368.4	58.4	**3**	417.8	66.2	**3**	467.2	74.0	**3**	516.6	81.8	**3**	565.9	89.6
4	320.0	50.7	**4**	369.4	58.5	**4**	418.8	66.3	**4**	468.2	74.1	**4**	517.5	82.0	**4**	566.9	89.8
5	321.0	50.8	**5**	370.4	58.7	**5**	419.8	66.5	**5**	469.2	74.3	**5**	518.5	82.1	**5**	567.9	89.9
6	322.0	51.0	**6**	371.4	58.8	**6**	420.8	66.6	**6**	470.1	74.5	**6**	519.5	82.3	**6**	568.9	90.1
7	323.0	51.2	**7**	372.4	59.0	**7**	421.7	66.8	**7**	471.1	74.6	**7**	520.5	82.4	**7**	569.9	90.3
8	324.0	51.3	**8**	373.3	59.1	**8**	422.7	67.0	**8**	472.1	74.8	**8**	521.5	82.6	**8**	570.9	90.4
9	324.9	51.5	**9**	374.3	59.3	**9**	423.7	67.1	**9**	473.1	74.9	**9**	522.5	82.8	**9**	571.9	90.6
330	325.9	51.6	**380**	375.3	59.4	**430**	424.7	67.3	**480**	474.1	75.1	**530**	523.5	82.9	**580**	572.9	90.7
1	326.9	51.8	**1**	376.3	59.6	**1**	425.7	67.4	**1**	475.1	75.2	**1**	524.5	83.1	**1**	573.8	90.9
2	327.9	51.9	**2**	377.3	59.8	**2**	426.7	67.6	**2**	476.1	75.4	**2**	525.5	83.2	**2**	574.8	91.0
3	328.9	52.1	**3**	378.3	59.9	**3**	427.7	67.7	**3**	477.1	75.6	**3**	526.4	83.4	**3**	575.8	91.2
4	329.9	52.2	**4**	379.3	60.1	**4**	428.7	67.9	**4**	478.0	75.7	**4**	527.4	83.5	**4**	576.8	91.4
5	330.9	52.4	**5**	380.3	60.2	**5**	429.6	68.0	**5**	479.0	75.9	**5**	528.4	83.7	**5**	577.8	91.5
6	331.9	52.6	**6**	381.2	60.4	**6**	430.6	68.2	**6**	480.0	76.0	**6**	529.4	83.8	**6**	578.8	91.7
7	332.9	52.7	**7**	382.2	60.5	**7**	431.6	68.4	**7**	481.0	76.2	**7**	530.4	84.0	**7**	579.8	91.8
8	333.8	52.9	**8**	383.2	60.7	**8**	432.6	68.5	**8**	482.0	76.3	**8**	531.4	84.2	**8**	580.8	92.0
9	334.8	53.0	**9**	384.2	60.9	**9**	433.6	68.7	**9**	483.0	76.5	**9**	532.4	84.3	**9**	581.7	92.1
340	335.8	53.2	**390**	385.2	61.0	**440**	434.6	68.8	**490**	484.0	76.7	**540**	533.4	84.5	**590**	582.7	92.3
1	336.8	53.3	**1**	386.2	61.2	**1**	435.6	69.0	**1**	485.0	76.8	**1**	534.3	84.6	**1**	583.7	92.5
2	337.8	53.5	**2**	387.2	61.3	**2**	436.6	69.1	**2**	485.9	77.0	**2**	535.3	84.8	**2**	584.7	92.6
3	338.8	53.7	**3**	388.2	61.5	**3**	437.5	69.3	**3**	486.9	77.1	**3**	536.3	84.9	**3**	585.7	92.8
4	339.8	53.8	**4**	389.1	61.6	**4**	438.5	69.5	**4**	487.9	77.3	**4**	537.3	85.1	**4**	586.7	92.9
5	340.8	54.0	**5**	390.1	61.8	**5**	439.5	69.6	**5**	488.9	77.4	**5**	538.3	85.3	**5**	587.7	93.1
6	341.7	54.1	**6**	391.1	61.9	**6**	440.5	69.8	**6**	489.9	77.6	**6**	539.3	85.4	**6**	588.7	93.2
7	342.7	54.3	**7**	392.1	62.1	**7**	441.5	69.9	**7**	490.9	77.7	**7**	540.3	85.6	**7**	589.6	93.4
8	343.7	54.4	**8**	393.1	62.3	**8**	442.5	70.1	**8**	491.9	77.9	**8**	541.3	85.7	**8**	590.6	93.5
9	344.7	54.6	**9**	394.1	62.4	**9**	443.5	70.2	**9**	492.9	78.1	**9**	542.2	85.9	**9**	591.6	93.7
D	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ
ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap

R

359 350° 315

181 190 225

TABELA 1

TÁBUAS DE CARTEAÇÃO

R ou φm

001 010 045

179 170 135

ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap	
D	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap
0	0.0	0.0	**50**	49.2	8.7	**100**	98.5	17.4	**150**	147.7	26.0	**200**	197.0	34.7	**250**	246.2	43.4
1	1.0	0.2	**1**	50.2	8.9	**1**	99.5	17.5	**1**	148.7	26.2	**1**	197.9	34.9	**1**	247.2	43.6
2	2.0	0.3	**2**	51.2	9.0	**2**	100.5	17.7	**2**	149.7	26.4	**2**	198.9	35.1	**2**	248.2	43.8
3	3.0	0.5	**3**	52.2	9.2	**3**	101.4	17.9	**3**	150.7	26.6	**3**	199.9	35.3	**3**	249.2	43.9
4	3.9	0.7	**4**	53.2	9.4	**4**	102.4	18.1	**4**	151.7	26.7	**4**	200.9	35.4	**4**	250.1	44.1
5	4.9	0.9	**5**	54.2	9.6	**5**	103.4	18.2	**5**	152.6	26.9	**5**	201.9	35.6	**5**	251.1	44.3
6	5.9	1.0	**6**	55.1	9.7	**6**	104.4	18.4	**6**	153.6	27.1	**6**	202.9	35.8	**6**	252.1	44.5
7	6.9	1.2	**7**	56.1	9.9	**7**	105.4	18.6	**7**	154.6	27.3	**7**	203.9	35.9	**7**	253.1	44.6
8	7.9	1.4	**8**	57.1	10.1	**8**	106.4	18.8	**8**	155.6	27.4	**8**	204.8	36.1	**8**	254.1	44.8
9	8.9	1.6	**9**	58.1	10.2	**9**	107.3	18.9	**9**	156.6	27.6	**9**	205.8	36.3	**9**	255.1	45.0
10	9.8	1.7	**60**	59.1	10.4	**110**	108.3	19.1	**160**	157.6	27.8	**210**	206.8	36.5	**260**	256.0	45.1
1	10.8	1.9	**1**	60.1	10.6	**1**	109.3	19.3	**1**	158.6	28.0	**1**	207.8	36.6	**1**	257.0	45.3
2	11.8	2.1	**2**	61.1	10.8	**2**	110.3	19.4	**2**	159.5	28.1	**2**	208.8	36.8	**2**	258.0	45.5
3	12.8	2.3	**3**	62.0	10.9	**3**	111.3	19.6	**3**	160.5	28.3	**3**	209.8	37.0	**3**	259.0	45.7
4	13.8	2.4	**4**	63.0	11.1	**4**	112.3	19.8	**4**	161.5	28.5	**4**	210.7	37.2	**4**	260.0	45.8
5	14.8	2.6	**5**	64.0	11.3	**5**	113.3	20.0	**5**	162.5	28.7	**5**	211.7	37.3	**5**	261.0	46.0
6	15.8	2.8	**6**	65.0	11.5	**6**	114.2	20.1	**6**	163.5	28.8	**6**	212.7	37.5	**6**	262.0	46.2
7	16.7	3.0	**7**	66.0	11.6	**7**	115.2	20.3	**7**	164.5	29.0	**7**	213.7	37.7	**7**	262.9	46.4
8	17.7	3.1	**8**	67.0	11.8	**8**	116.2	20.5	**8**	165.4	29.2	**8**	214.7	37.9	**8**	263.9	46.5
9	18.7	3.3	**9**	68.0	12.0	**9**	117.2	20.7	**9**	166.4	29.3	**9**	215.7	38.0	**9**	264.9	46.7
20	19.7	3.5	**70**	68.9	12.2	**120**	118.2	20.8	**170**	167.4	29.5	**220**	216.7	38.2	**270**	265.9	46.9
1	20.7	3.6	**1**	69.9	12.3	**1**	119.2	21.0	**1**	168.4	29.7	**1**	217.6	38.4	**1**	266.9	47.1
2	21.7	3.8	**2**	70.9	12.5	**2**	120.1	21.2	**2**	169.4	29.9	**2**	218.6	38.5	**2**	267.9	47.2
3	22.7	4.0	**3**	71.9	12.7	**3**	121.1	21.4	**3**	170.4	30.0	**3**	219.6	38.7	**3**	268.9	47.4
4	23.6	4.2	**4**	72.9	12.8	**4**	122.1	21.5	**4**	171.4	30.2	**4**	220.6	38.9	**4**	269.8	47.6
5	24.6	4.3	**5**	73.9	13.0	**5**	123.1	21.7	**5**	172.3	30.4	**5**	221.6	39.1	**5**	270.8	47.8
6	25.6	4.5	**6**	74.8	13.2	**6**	124.1	21.9	**6**	173.3	30.6	**6**	222.6	39.2	**6**	271.8	47.9
7	26.6	4.7	**7**	75.8	13.4	**7**	125.1	22.1	**7**	174.3	30.7	**7**	223.6	39.4	**7**	272.8	48.1
8	27.6	4.9	**8**	76.8	13.5	**8**	126.1	22.2	**8**	175.3	30.9	**8**	224.5	39.6	**8**	273.8	48.3
9	28.6	5.0	**9**	77.8	13.7	**9**	127.0	22.4	**9**	176.3	31.1	**9**	225.5	39.8	**9**	274.8	48.4
30	29.5	5.2	**80**	78.8	13.9	**130**	128.0	22.6	**180**	177.3	31.3	**230**	226.5	39.9	**280**	275.7	48.6
1	30.5	5.4	**1**	79.8	14.1	**1**	129.0	22.7	**1**	178.3	31.4	**1**	227.5	40.1	**1**	276.7	48.8
2	31.5	5.6	**2**	80.8	14.2	**2**	130.0	22.9	**2**	179.2	31.6	**2**	228.5	40.3	**2**	277.7	49.0
3	32.5	5.7	**3**	81.7	14.4	**3**	131.0	23.1	**3**	180.2	31.8	**3**	229.5	40.5	**3**	278.7	49.1
4	33.5	5.9	**4**	82.7	14.6	**4**	132.0	23.3	**4**	181.2	32.0	**4**	230.4	40.6	**4**	279.7	49.3
5	34.5	6.1	**5**	83.7	14.8	**5**	132.9	23.4	**5**	182.2	32.1	**5**	231.4	40.8	**5**	280.7	49.5
6	35.5	6.3	**6**	84.7	14.9	**6**	133.9	23.6	**6**	183.2	32.3	**6**	232.4	41.0	**6**	281.7	49.7
7	36.4	6.4	**7**	85.7	15.1	**7**	134.9	23.8	**7**	184.2	32.5	**7**	233.4	41.2	**7**	282.6	49.8
8	37.4	6.6	**8**	86.7	15.3	**8**	135.9	24.0	**8**	185.1	32.6	**8**	234.4	41.3	**8**	283.6	50.0
9	38.4	6.8	**9**	87.6	15.5	**9**	136.9	24.1	**9**	186.1	32.8	**9**	235.4	41.5	**9**	284.6	50.2
40	39.4	6.9	**90**	88.6	15.6	**140**	137.9	24.3	**190**	187.1	33.0	**240**	236.4	41.7	**290**	285.6	50.4
1	40.4	7.1	**1**	89.6	15.8	**1**	138.9	24.5	**1**	188.1	33.2	**1**	237.3	41.8	**1**	286.6	50.5
2	41.4	7.3	**2**	90.6	16.0	**2**	139.8	24.7	**2**	189.1	33.3	**2**	238.3	42.0	**2**	287.6	50.7
3	42.3	7.5	**3**	91.6	16.1	**3**	140.8	24.8	**3**	190.1	33.5	**3**	239.3	42.2	**3**	288.5	50.9
4	43.3	7.6	**4**	92.6	16.3	**4**	141.8	25.0	**4**	191.1	33.7	**4**	240.3	42.4	**4**	289.5	51.1
5	44.3	7.8	**5**	93.6	16.5	**5**	142.8	25.2	**5**	192.0	33.9	**5**	241.3	42.5	**5**	290.5	51.2
6	45.3	8.0	**6**	94.5	16.7	**6**	143.8	25.4	**6**	193.0	34.0	**6**	242.3	42.7	**6**	291.5	51.4
7	46.3	8.2	**7**	95.5	16.8	**7**	144.8	25.5	**7**	194.0	34.2	**7**	243.2	42.9	**7**	292.5	51.6
8	47.3	8.3	**8**	96.5	17.0	**8**	145.8	25.7	**8**	195.0	34.4	**8**	244.2	43.1	**8**	293.5	51.7
9	48.3	8.5	**9**	97.5	17.2	**9**	146.7	25.9	**9**	196.0	34.6	**9**	245.2	43.2	**9**	294.5	51.9
D	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ
ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap

271 280 315

269 260 225

R

089 080° 045

091 100 135

R ou φm

ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap	
D	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap
300	295.4	52.1	**350**	344.7	60.8	**400**	393.9	69.5	**450**	443.2	78.1	**500**	492.4	86.8	**550**	541.6	95.5
1	296.4	52.3	**1**	345.7	61.0	**1**	394.9	69.6	**1**	444.1	78.3	**1**	493.4	87.0	**1**	542.6	95.7
2	297.4	52.4	**2**	346.7	61.1	**2**	395.9	69.8	**2**	445.1	78.5	**2**	494.4	87.2	**2**	543.6	95.9
3	298.4	52.6	**3**	347.6	61.3	**3**	396.9	70.0	**3**	446.1	78.7	**3**	495.4	87.3	**3**	544.6	96.0
4	299.4	52.8	**4**	348.6	61.5	**4**	397.9	70.2	**4**	447.1	78.8	**4**	496.3	87.5	**4**	545.6	96.2
5	300.4	53.0	**5**	349.6	61.6	**5**	398.8	70.3	**5**	448.1	79.0	**5**	497.3	87.7	**5**	546.6	96.4
6	301.4	53.1	**6**	350.6	61.8	**6**	399.8	70.5	**6**	449.1	79.2	**6**	498.3	87.9	**6**	547.6	96.5
7	302.3	53.3	**7**	351.6	62.0	**7**	400.8	70.7	**7**	450.1	79.4	**7**	499.3	88.0	**7**	548.5	96.7
8	303.3	53.5	**8**	352.6	62.2	**8**	401.8	70.8	**8**	451.0	79.5	**8**	500.3	88.2	**8**	549.5	96.9
9	304.3	53.7	**9**	353.5	62.3	**9**	402.8	71.0	**9**	452.0	79.7	**9**	501.3	88.4	**9**	550.5	97.1
310	305.3	53.8	**360**	354.5	62.5	**410**	403.8	71.2	**460**	453.0	79.9	**510**	502.3	88.6	**560**	551.5	97.2
1	306.3	54.0	**1**	355.5	62.7	**1**	404.8	71.4	**1**	454.0	80.1	**1**	503.2	88.7	**1**	552.5	97.4
2	307.3	54.2	**2**	356.5	62.9	**2**	405.7	71.5	**2**	455.0	80.2	**2**	504.2	88.9	**2**	553.5	97.6
3	308.2	54.4	**3**	357.5	63.0	**3**	406.7	71.7	**3**	456.0	80.4	**3**	505.2	89.1	**3**	554.4	97.8
4	309.2	54.5	**4**	358.5	63.2	**4**	407.7	71.9	**4**	457.0	80.6	**4**	506.2	89.3	**4**	555.4	97.9
5	310.2	54.7	**5**	359.5	63.4	**5**	408.7	72.1	**5**	457.9	80.7	**5**	507.2	89.4	**5**	556.4	98.1
6	311.2	54.9	**6**	360.4	63.6	**6**	409.7	72.2	**6**	458.9	80.9	**6**	508.2	89.6	**6**	557.4	98.3
7	312.2	55.0	**7**	361.4	63.7	**7**	410.7	72.4	**7**	459.9	81.1	**7**	509.1	89.8	**7**	558.4	98.5
8	313.2	55.2	**8**	362.4	63.9	**8**	411.6	72.6	**8**	460.9	81.3	**8**	510.1	89.9	**8**	559.4	98.6
9	314.2	55.4	**9**	363.4	64.1	**9**	412.6	72.8	**9**	461.9	81.4	**9**	511.1	90.1	**9**	560.4	98.8
320	315.1	55.6	**370**	364.4	64.2	**420**	413.6	72.9	**470**	462.9	81.6	**520**	512.1	90.3	**570**	561.3	99.0
1	316.1	55.7	**1**	365.4	64.4	**1**	414.6	73.1	**1**	463.8	81.8	**1**	513.1	90.5	**1**	562.3	99.2
2	317.1	55.9	**2**	366.3	64.6	**2**	415.6	73.3	**2**	464.8	82.0	**2**	514.1	90.6	**2**	563.3	99.3
3	318.1	56.1	**3**	367.3	64.8	**3**	416.6	73.5	**3**	465.8	82.1	**3**	515.1	90.8	**3**	564.3	99.5
4	319.1	56.3	**4**	368.3	64.9	**4**	417.6	73.6	**4**	466.8	82.3	**4**	516.0	91.0	**4**	565.3	99.7
5	320.1	56.4	**5**	369.3	65.1	**5**	418.5	73.8	**5**	467.8	82.5	**5**	517.0	91.2	**5**	566.3	99.8
6	321.0	56.6	**6**	370.3	65.3	**6**	419.5	74.0	**6**	468.8	82.7	**6**	518.0	91.3	**6**	567.2	100.0
7	322.0	56.8	**7**	371.3	65.5	**7**	420.5	74.1	**7**	469.8	82.8	**7**	519.0	91.5	**7**	568.2	100.2
8	323.0	57.0	**8**	372.3	65.6	**8**	421.5	74.3	**8**	470.7	83.0	**8**	520.0	91.7	**8**	569.2	100.4
9	324.0	57.1	**9**	373.2	65.8	**9**	422.5	74.5	**9**	471.7	83.2	**9**	521.0	91.9	**9**	570.2	100.5
330	325.0	57.3	**380**	374.2	66.0	**430**	423.5	74.7	**480**	472.7	83.4	**530**	521.9	92.0	**580**	571.2	100.7
1	326.0	57.5	**1**	375.2	66.2	**1**	424.5	74.8	**1**	473.7	83.5	**1**	522.9	92.2	**1**	572.2	100.9
2	327.0	57.7	**2**	376.2	66.3	**2**	425.4	75.0	**2**	474.7	83.7	**2**	523.9	92.4	**2**	573.2	101.1
3	327.9	57.8	**3**	377.2	66.5	**3**	426.4	75.2	**3**	475.7	83.9	**3**	524.9	92.6	**3**	574.1	101.2
4	328.9	58.0	**4**	378.2	66.7	**4**	427.4	75.4	**4**	476.6	84.0	**4**	525.9	92.7	**4**	575.1	101.4
5	329.9	58.2	**5**	379.2	66.9	**5**	428.4	75.5	**5**	477.6	84.2	**5**	526.9	92.9	**5**	576.1	101.6
6	330.9	58.3	**6**	380.1	67.0	**6**	429.4	75.7	**6**	478.6	84.4	**6**	527.9	93.1	**6**	577.1	101.8
7	331.9	58.5	**7**	381.1	67.2	**7**	430.4	75.9	**7**	479.6	84.6	**7**	528.8	93.2	**7**	578.1	101.9
8	332.9	58.7	**8**	382.1	67.4	**8**	431.3	76.1	**8**	480.6	84.7	**8**	529.8	93.4	**8**	579.1	102.1
9	333.8	58.9	**9**	383.1	67.5	**9**	432.3	76.2	**9**	481.6	84.9	**9**	530.8	93.6	**9**	580.1	102.3
340	334.8	59.0	**390**	384.1	67.7	**440**	433.3	76.4	**490**	482.6	85.1	**540**	531.8	93.8	**590**	581.0	102.5
1	335.8	59.2	**1**	385.1	67.9	**1**	434.3	76.6	**1**	483.5	85.3	**1**	532.8	93.9	**1**	582.0	102.6
2	336.8	59.4	**2**	386.0	68.1	**2**	435.3	76.8	**2**	484.5	85.4	**2**	533.8	94.1	**2**	583.0	102.8
3	337.8	59.6	**3**	387.0	68.2	**3**	436.3	76.9	**3**	485.5	85.6	**3**	534.8	94.3	**3**	584.0	103.0
4	338.8	59.7	**4**	388.0	68.4	**4**	437.3	77.1	**4**	486.5	85.8	**4**	535.7	94.5	**4**	585.0	103.1
5	339.8	59.9	**5**	389.0	68.6	**5**	438.2	77.3	**5**	487.5	86.0	**5**	536.7	94.6	**5**	586.0	103.3
6	340.7	60.1	**6**	390.0	68.8	**6**	439.2	77.4	**6**	488.5	86.1	**6**	537.7	94.8	**6**	586.9	103.5
7	341.7	60.3	**7**	391.0	68.9	**7**	440.2	77.6	**7**	489.4	86.3	**7**	538.7	95.0	**7**	587.9	103.7
8	342.7	60.4	**8**	392.0	69.1	**8**	441.2	77.8	**8**	490.4	86.5	**8**	539.7	95.2	**8**	588.9	103.8
9	343.7	60.6	**9**	392.9	69.3	**9**	442.2	78.0	**9**	491.4	86.7	**9**	540.7	95.3	**9**	589.9	104.0
D	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ
ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap

ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap	
D	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap
0	0.0	0.0	**50**	49.1	9.5	**100**	98.2	19.1	**150**	147.2	28.6	**200**	196.3	38.2	**250**	245.4	47.7
1	1.0	0.2	**1**	50.1	9.7	**1**	99.1	19.3	**1**	148.2	28.8	**1**	197.3	38.4	**1**	246.4	47.9
2	2.0	0.4	**2**	51.0	9.9	**2**	100.1	19.5	**2**	149.2	29.0	**2**	198.3	38.5	**2**	247.4	48.1
3	2.9	0.6	**3**	52.0	10.1	**3**	101.1	19.7	**3**	150.2	29.2	**3**	199.3	38.7	**3**	248.4	48.3
4	3.9	0.8	**4**	53.0	10.3	**4**	102.1	19.8	**4**	151.2	29.4	**4**	200.3	38.9	**4**	249.3	48.5
5	4.9	1.0	**5**	54.0	10.5	**5**	103.1	20.0	**5**	152.2	29.6	**5**	201.2	39.1	**5**	250.3	48.7
6	5.9	1.1	**6**	55.0	10.7	**6**	104.1	20.2	**6**	153.1	29.8	**6**	202.2	39.3	**6**	251.3	48.8
7	6.9	1.3	**7**	56.0	10.9	**7**	105.0	20.4	**7**	154.1	30.0	**7**	203.2	39.5	**7**	252.3	49.0
8	7.9	1.5	**8**	56.9	11.1	**8**	106.0	20.6	**8**	155.1	30.1	**8**	204.2	39.7	**8**	253.3	49.2
9	8.8	1.7	**9**	57.9	11.3	**9**	107.0	20.8	**9**	156.1	30.3	**9**	205.2	39.9	**9**	254.2	49.4
10	9.8	1.9	**60**	58.9	11.4	**110**	108.0	21.0	**160**	157.1	30.5	**210**	206.1	40.1	**260**	255.2	49.6
1	10.8	2.1	**1**	59.9	11.6	**1**	109.0	21.2	**1**	158.0	30.7	**1**	207.1	40.3	**1**	256.2	49.8
2	11.8	2.3	**2**	60.9	11.8	**2**	109.9	21.4	**2**	159.0	30.9	**2**	208.1	40.5	**2**	257.2	50.0
3	12.8	2.5	**3**	61.8	12.0	**3**	110.9	21.6	**3**	160.0	31.1	**3**	209.1	40.6	**3**	258.2	50.2
4	13.7	2.7	**4**	62.8	12.2	**4**	111.9	21.8	**4**	161.0	31.3	**4**	210.1	40.8	**4**	259.1	50.4
5	14.7	2.9	**5**	63.8	12.4	**5**	112.9	21.9	**5**	162.0	31.5	**5**	211.0	41.0	**5**	260.1	50.6
6	15.7	3.1	**6**	64.8	12.6	**6**	113.9	22.1	**6**	163.0	31.7	**6**	212.0	41.2	**6**	261.1	50.8
7	16.7	3.2	**7**	65.8	12.8	**7**	114.9	22.3	**7**	163.9	31.9	**7**	213.0	41.4	**7**	262.1	50.9
8	17.7	3.4	**8**	66.8	13.0	**8**	115.8	22.5	**8**	164.9	32.1	**8**	214.0	41.6	**8**	263.1	51.1
9	18.7	3.6	**9**	67.7	13.2	**9**	116.8	22.7	**9**	165.9	32.2	**9**	215.0	41.8	**9**	264.1	51.3
20	19.6	3.8	**70**	68.7	13.4	**120**	117.8	22.9	**170**	166.9	32.4	**220**	216.0	42.0	**270**	265.0	51.5
1	20.6	4.0	**1**	69.7	13.5	**1**	118.8	23.1	**1**	167.9	32.6	**1**	216.9	42.2	**1**	266.0	51.7
2	21.6	4.2	**2**	70.7	13.7	**2**	119.8	23.3	**2**	168.8	32.8	**2**	217.9	42.4	**2**	267.0	51.9
3	22.6	4.4	**3**	71.7	13.9	**3**	120.7	23.5	**3**	169.8	33.0	**3**	218.9	42.6	**3**	268.0	52.1
4	23.6	4.6	**4**	72.6	14.1	**4**	121.7	23.7	**4**	170.8	33.2	**4**	219.9	42.7	**4**	269.0	52.3
5	24.5	4.8	**5**	73.6	14.3	**5**	122.7	23.9	**5**	171.8	33.4	**5**	220.9	42.9	**5**	269.9	52.5
6	25.5	5.0	**6**	74.6	14.5	**6**	123.7	24.0	**6**	172.8	33.6	**6**	221.8	43.1	**6**	270.9	52.7
7	26.5	5.2	**7**	75.6	14.7	**7**	124.7	24.2	**7**	173.7	33.8	**7**	222.8	43.3	**7**	271.9	52.9
8	27.5	5.3	**8**	76.6	14.9	**8**	125.6	24.4	**8**	174.7	34.0	**8**	223.8	43.5	**8**	272.9	53.0
9	28.5	5.5	**9**	77.5	15.1	**9**	126.6	24.6	**9**	175.7	34.2	**9**	224.8	43.7	**9**	273.9	53.2
30	29.4	5.7	**80**	78.5	15.3	**130**	127.6	24.8	**180**	176.7	34.3	**230**	225.8	43.9	**280**	274.9	53.4
1	30.4	5.9	**1**	79.5	15.5	**1**	128.6	25.0	**1**	177.7	34.5	**1**	226.8	44.1	**1**	275.8	53.6
2	31.4	6.1	**2**	80.5	15.6	**2**	129.6	25.2	**2**	178.7	34.7	**2**	227.7	44.3	**2**	276.8	53.8
3	32.4	6.3	**3**	81.5	15.8	**3**	130.6	25.4	**3**	179.6	34.9	**3**	228.7	44.5	**3**	277.8	54.0
4	33.4	6.5	**4**	82.5	16.0	**4**	131.5	25.6	**4**	180.6	35.1	**4**	229.7	44.6	**4**	278.8	54.2
5	34.4	6.7	**5**	83.4	16.2	**5**	132.5	25.8	**5**	181.6	35.3	**5**	230.7	44.8	**5**	279.8	54.4
6	35.3	6.9	**6**	84.4	16.4	**6**	133.5	26.0	**6**	182.6	35.5	**6**	231.7	45.0	**6**	280.7	54.6
7	36.3	7.1	**7**	85.4	16.6	**7**	134.5	26.1	**7**	183.6	35.7	**7**	232.6	45.2	**7**	281.7	54.8
8	37.3	7.3	**8**	86.4	16.8	**8**	135.5	26.3	**8**	184.5	35.9	**8**	233.6	45.4	**8**	282.7	55.0
9	38.3	7.4	**9**	87.4	17.0	**9**	136.4	26.5	**9**	185.5	36.1	**9**	234.6	45.6	**9**	283.7	55.1
40	39.3	7.6	**90**	88.3	17.2	**140**	137.4	26.7	**190**	186.5	36.3	**240**	235.6	45.8	**290**	284.7	55.3
1	40.2	7.8	**1**	89.3	17.4	**1**	138.4	26.9	**1**	187.5	36.4	**1**	236.6	46.0	**1**	285.7	55.5
2	41.2	8.0	**2**	90.3	17.6	**2**	139.4	27.1	**2**	188.5	36.6	**2**	237.6	46.2	**2**	286.6	55.7
3	42.2	8.2	**3**	91.3	17.7	**3**	140.4	27.3	**3**	189.5	36.8	**3**	238.5	46.4	**3**	287.6	55.9
4	43.2	8.4	**4**	92.3	17.9	**4**	141.4	27.5	**4**	190.4	37.0	**4**	239.5	46.6	**4**	288.6	56.1
5	44.2	8.6	**5**	93.3	18.1	**5**	142.3	27.7	**5**	191.4	37.2	**5**	240.5	46.7	**5**	289.6	56.3
6	45.2	8.8	**6**	94.2	18.3	**6**	143.3	27.9	**6**	192.4	37.4	**6**	241.5	46.9	**6**	290.6	56.5
7	46.1	9.0	**7**	95.2	18.5	**7**	144.3	28.0	**7**	193.4	37.6	**7**	242.5	47.1	**7**	291.5	56.7
8	47.1	9.2	**8**	96.2	18.7	**8**	145.3	28.2	**8**	194.4	37.8	**8**	243.4	47.3	**8**	292.5	56.9
9	48.1	9.3	**9**	97.2	18.9	**9**	146.3	28.4	**9**	195.3	38.0	**9**	244.4	47.5	**9**	293.5	57.1
D	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ
ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap

ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap	
D	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap
300	294.5	57.2	**350**	343.6	66.8	**400**	392.7	76.3	**450**	441.7	85.9	**500**	490.8	95.4	**550**	539.9	104.9
1	295.5	57.4	**1**	344.6	67.0	**1**	393.6	76.5	**1**	442.7	86.1	**1**	491.8	95.6	**1**	540.9	105.1
2	296.5	57.6	**2**	345.5	67.2	**2**	394.6	76.7	**2**	443.7	86.2	**2**	492.8	95.8	**2**	541.9	105.3
3	297.4	57.8	**3**	346.5	67.4	**3**	395.6	76.9	**3**	444.7	86.4	**3**	493.8	96.0	**3**	542.8	105.5
4	298.4	58.0	**4**	347.5	67.5	**4**	396.6	77.1	**4**	445.7	86.6	**4**	494.7	96.2	**4**	543.8	105.7
5	299.4	58.2	**5**	348.5	67.7	**5**	397.6	77.3	**5**	446.6	86.8	**5**	495.7	96.4	**5**	544.8	105.9
6	300.4	58.4	**6**	349.5	67.9	**6**	398.5	77.5	**6**	447.6	87.0	**6**	496.7	96.5	**6**	545.8	106.1
7	301.4	58.6	**7**	350.4	68.1	**7**	399.5	77.7	**7**	448.6	87.2	**7**	497.7	96.7	**7**	546.8	106.3
8	302.3	58.8	**8**	351.4	68.3	**8**	400.5	77.9	**8**	449.6	87.4	**8**	498.7	96.9	**8**	547.7	106.5
9	303.3	59.0	**9**	352.4	68.5	**9**	401.5	78.0	**9**	450.6	87.6	**9**	499.6	97.1	**9**	548.7	106.7
310	304.3	59.2	**360**	353.4	68.7	**410**	402.5	78.2	**460**	451.5	87.8	**510**	500.6	97.3	**560**	549.7	106.9
1	305.3	59.3	**1**	354.4	68.9	**1**	403.4	78.4	**1**	452.5	88.0	**1**	501.6	97.5	**1**	550.7	107.0
2	306.3	59.5	**2**	355.3	69.1	**2**	404.4	78.6	**2**	453.5	88.2	**2**	502.6	97.7	**2**	551.7	107.2
3	307.2	59.7	**3**	356.3	69.3	**3**	405.4	78.8	**3**	454.5	88.3	**3**	503.6	97.9	**3**	552.7	107.4
4	308.2	59.9	**4**	357.3	69.5	**4**	406.4	79.0	**4**	455.5	88.5	**4**	504.6	98.1	**4**	553.6	107.6
5	309.2	60.1	**5**	358.3	69.6	**5**	407.4	79.2	**5**	456.5	88.7	**5**	505.5	98.3	**5**	554.6	107.8
6	310.2	60.3	**6**	359.3	69.8	**6**	408.4	79.4	**6**	457.4	88.9	**6**	506.5	98.5	**6**	555.6	108.0
7	311.2	60.5	**7**	360.3	70.0	**7**	409.3	79.6	**7**	458.4	89.1	**7**	507.5	98.6	**7**	556.6	108.2
8	312.2	60.7	**8**	361.2	70.2	**8**	410.3	79.8	**8**	459.4	89.3	**8**	508.5	98.8	**8**	557.6	108.4
9	313.1	60.9	**9**	362.2	70.4	**9**	411.3	79.9	**9**	460.4	89.5	**9**	509.5	99.0	**9**	558.5	108.6
320	314.1	61.1	**370**	363.2	70.6	**420**	412.3	80.1	**470**	461.4	89.7	**520**	510.4	99.2	**570**	559.5	108.8
1	315.1	61.2	**1**	364.2	70.8	**1**	413.3	80.3	**1**	462.3	89.9	**1**	511.4	99.4	**1**	560.5	109.0
2	316.1	61.4	**2**	365.2	71.0	**2**	414.2	80.5	**2**	463.3	90.1	**2**	512.4	99.6	**2**	561.5	109.1
3	317.1	61.6	**3**	366.1	71.2	**3**	415.2	80.7	**3**	464.3	90.3	**3**	513.4	99.8	**3**	562.5	109.3
4	318.0	61.8	**4**	367.1	71.4	**4**	416.2	80.9	**4**	465.3	90.4	**4**	514.4	100.0	**4**	563.5	109.5
5	319.0	62.0	**5**	368.1	71.6	**5**	417.2	81.1	**5**	466.3	90.6	**5**	515.4	100.2	**5**	564.4	109.7
6	320.0	62.2	**6**	369.1	71.7	**6**	418.2	81.3	**6**	467.3	90.8	**6**	516.3	100.4	**6**	565.4	109.9
7	321.0	62.4	**7**	370.1	71.9	**7**	419.2	81.5	**7**	468.2	91.0	**7**	517.3	100.6	**7**	566.4	110.1
8	322.0	62.6	**8**	371.1	72.1	**8**	420.1	81.7	**8**	469.2	91.2	**8**	518.3	100.7	**8**	567.4	110.3
9	323.0	62.8	**9**	372.0	72.3	**9**	421.1	81.9	**9**	470.2	91.4	**9**	519.3	100.9	**9**	568.4	110.5
330	323.9	63.0	**380**	373.0	72.5	**430**	422.1	82.0	**480**	471.2	91.6	**530**	520.3	101.1	**580**	569.3	110.7
1	324.9	63.2	**1**	374.0	72.7	**1**	423.1	82.2	**1**	472.2	91.8	**1**	521.2	101.3	**1**	570.3	110.9
2	325.9	63.3	**2**	375.0	72.9	**2**	424.1	82.4	**2**	473.1	92.0	**2**	522.2	101.5	**2**	571.3	111.1
3	326.9	63.5	**3**	376.0	73.1	**3**	425.0	82.6	**3**	474.1	92.2	**3**	523.2	101.7	**3**	572.3	111.2
4	327.9	63.7	**4**	376.9	73.3	**4**	426.0	82.8	**4**	475.1	92.4	**4**	524.2	101.9	**4**	573.3	111.4
5	328.8	63.9	**5**	377.9	73.5	**5**	427.0	83.0	**5**	476.1	92.5	**5**	525.2	102.1	**5**	574.3	111.6
6	329.8	64.1	**6**	378.9	73.7	**6**	428.0	83.2	**6**	477.1	92.7	**6**	526.2	102.3	**6**	575.2	111.8
7	330.8	64.3	**7**	379.9	73.8	**7**	429.0	83.4	**7**	478.1	92.9	**7**	527.1	102.5	**7**	576.2	112.0
8	331.8	64.5	**8**	380.9	74.0	**8**	430.0	83.6	**8**	479.0	93.1	**8**	528.1	102.7	**8**	577.2	112.2
9	332.8	64.7	**9**	381.9	74.2	**9**	430.9	83.8	**9**	480.0	93.3	**9**	529.1	102.8	**9**	578.2	112.4
340	333.8	64.9	**390**	382.8	74.4	**440**	431.9	84.0	**490**	481.0	93.5	**540**	530.1	103.0	**590**	579.2	112.6
1	334.7	65.1	**1**	383.8	74.6	**1**	432.9	84.1	**1**	482.0	93.7	**1**	531.1	103.2	**1**	580.1	112.8
2	335.7	65.3	**2**	384.8	74.8	**2**	433.9	84.3	**2**	483.0	93.9	**2**	532.0	103.4	**2**	581.1	113.0
3	336.7	65.4	**3**	385.8	75.0	**3**	434.9	84.5	**3**	483.9	94.1	**3**	533.0	103.6	**3**	582.1	113.1
4	337.7	65.6	**4**	386.8	75.2	**4**	435.8	84.7	**4**	484.9	94.3	**4**	534.0	103.8	**4**	583.1	113.3
5	338.7	65.8	**5**	387.7	75.4	**5**	436.8	84.9	**5**	485.9	94.5	**5**	535.0	104.0	**5**	584.1	113.5
6	339.6	66.0	**6**	388.7	75.6	**6**	437.8	85.1	**6**	486.9	94.6	**6**	536.0	104.2	**6**	585.0	113.7
7	340.6	66.2	**7**	389.7	75.8	**7**	438.8	85.3	**7**	487.9	94.8	**7**	536.9	104.4	**7**	586.0	113.9
8	341.6	66.4	**8**	390.7	75.9	**8**	439.8	85.5	**8**	488.9	95.0	**8**	537.9	104.6	**8**	587.0	114.1
9	342.6	66.6	**9**	391.7	76.1	**9**	440.8	85.7	**9**	489.8	95.2	**9**	538.9	104.8	**9**	588.0	114.3
D	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ
ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap

ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap	
D	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap
0	0.0	0.0	**50**	48.9	10.4	**100**	97.8	20.8	**150**	146.7	31.2	**200**	195.6	41.6	**250**	244.5	52.0
1	1.0	0.2	**1**	49.9	10.6	**1**	98.8	21.0	**1**	147.7	31.4	**1**	196.6	41.8	**1**	245.5	52.2
2	2.0	0.4	**2**	50.9	10.8	**2**	99.8	21.2	**2**	148.7	31.6	**2**	197.6	42.0	**2**	246.5	52.4
3	2.9	0.6	**3**	51.8	11.0	**3**	100.7	21.4	**3**	149.7	31.8	**3**	198.6	42.2	**3**	247.5	52.6
4	3.9	0.8	**4**	52.8	11.2	**4**	101.7	21.6	**4**	150.6	32.0	**4**	199.5	42.4	**4**	248.4	52.8
5	4.9	1.0	**5**	53.8	11.4	**5**	102.7	21.8	**5**	151.6	32.2	**5**	200.5	42.6	**5**	249.4	53.0
6	5.9	1.2	**6**	54.8	11.6	**6**	103.7	22.0	**6**	152.6	32.4	**6**	201.5	42.8	**6**	250.4	53.2
7	6.8	1.5	**7**	55.8	11.9	**7**	104.7	22.2	**7**	153.6	32.6	**7**	202.5	43.0	**7**	251.4	53.4
8	7.8	1.7	**8**	56.7	12.1	**8**	105.6	22.5	**8**	154.5	32.9	**8**	203.5	43.2	**8**	252.4	53.6
9	8.8	1.9	**9**	57.7	12.3	**9**	106.6	22.7	**9**	155.5	33.1	**9**	204.4	43.5	**9**	253.3	53.8
10	9.8	2.1	**60**	58.7	12.5	**110**	107.6	22.9	**160**	156.5	33.3	**210**	205.4	43.7	**260**	254.3	54.1
1	10.8	2.3	**1**	59.7	12.7	**1**	108.6	23.1	**1**	157.5	33.5	**1**	206.4	43.9	**1**	255.3	54.3
2	11.7	2.5	**2**	60.6	12.9	**2**	109.6	23.3	**2**	158.5	33.7	**2**	207.4	44.1	**2**	256.3	54.5
3	12.7	2.7	**3**	61.6	13.1	**3**	110.5	23.5	**3**	159.4	33.9	**3**	208.3	44.3	**3**	257.3	54.7
4	13.7	2.9	**4**	62.6	13.3	**4**	111.5	23.7	**4**	160.4	34.1	**4**	209.3	44.5	**4**	258.2	54.9
5	14.7	3.1	**5**	63.6	13.5	**5**	112.5	23.9	**5**	161.4	34.3	**5**	210.3	44.7	**5**	259.2	55.1
6	15.7	3.3	**6**	64.6	13.7	**6**	113.5	24.1	**6**	162.4	34.5	**6**	211.3	44.9	**6**	260.2	55.3
7	16.6	3.5	**7**	65.5	13.9	**7**	114.4	24.3	**7**	163.4	34.7	**7**	212.3	45.1	**7**	261.2	55.5
8	17.6	3.7	**8**	66.5	14.1	**8**	115.4	24.5	**8**	164.3	34.9	**8**	213.2	45.3	**8**	262.1	55.7
9	18.6	4.0	**9**	67.5	14.3	**9**	116.4	24.7	**9**	165.3	35.1	**9**	214.2	45.5	**9**	263.1	55.9
20	19.6	4.2	**70**	68.5	14.6	**120**	117.4	24.9	**170**	166.3	35.3	**220**	215.2	45.7	**270**	264.1	56.1
1	20.5	4.4	**1**	69.4	14.8	**1**	118.4	25.2	**1**	167.3	35.6	**1**	216.2	45.9	**1**	265.1	56.3
2	21.5	4.6	**2**	70.4	15.0	**2**	119.3	25.4	**2**	168.2	35.8	**2**	217.1	46.2	**2**	266.1	56.6
3	22.5	4.8	**3**	71.4	15.2	**3**	120.3	25.6	**3**	169.2	36.0	**3**	218.1	46.4	**3**	267.0	56.8
4	23.5	5.0	**4**	72.4	15.4	**4**	121.3	25.8	**4**	170.2	36.2	**4**	219.1	46.6	**4**	268.0	57.0
5	24.5	5.2	**5**	73.4	15.6	**5**	122.3	26.0	**5**	171.2	36.4	**5**	220.1	46.8	**5**	269.0	57.2
6	25.4	5.4	**6**	74.3	15.8	**6**	123.2	26.2	**6**	172.2	36.6	**6**	221.1	47.0	**6**	270.0	57.4
7	26.4	5.6	**7**	75.3	16.0	**7**	124.2	26.4	**7**	173.1	36.8	**7**	222.0	47.2	**7**	270.9	57.6
8	27.4	5.8	**8**	76.3	16.2	**8**	125.2	26.6	**8**	174.1	37.0	**8**	223.0	47.4	**8**	271.9	57.8
9	28.4	6.0	**9**	77.3	16.4	**9**	126.2	26.8	**9**	175.1	37.2	**9**	224.0	47.6	**9**	272.9	58.0
30	29.3	6.2	**80**	78.3	16.6	**130**	127.2	27.0	**180**	176.1	37.4	**230**	225.0	47.8	**280**	273.9	58.2
1	30.3	6.4	**1**	79.2	16.8	**1**	128.1	27.2	**1**	177.0	37.6	**1**	226.0	48.0	**1**	274.9	58.4
2	31.3	6.7	**2**	80.2	17.0	**2**	129.1	27.4	**2**	178.0	37.8	**2**	226.9	48.2	**2**	275.8	58.6
3	32.3	6.9	**3**	81.2	17.3	**3**	130.1	27.7	**3**	179.0	38.0	**3**	227.9	48.4	**3**	276.8	58.8
4	33.3	7.1	**4**	82.2	17.5	**4**	131.1	27.9	**4**	180.0	38.3	**4**	228.9	48.7	**4**	277.8	59.0
5	34.2	7.3	**5**	83.1	17.7	**5**	132.0	28.1	**5**	181.0	38.5	**5**	229.9	48.9	**5**	278.8	59.3
6	35.2	7.5	**6**	84.1	17.9	**6**	133.0	28.3	**6**	181.9	38.7	**6**	230.8	49.1	**6**	279.8	59.5
7	36.2	7.7	**7**	85.1	18.1	**7**	134.0	28.5	**7**	182.9	38.9	**7**	231.8	49.3	**7**	280.7	59.7
8	37.2	7.9	**8**	86.1	18.3	**8**	135.0	28.7	**8**	183.9	39.1	**8**	232.8	49.5	**8**	281.7	59.9
9	38.1	8.1	**9**	87.1	18.5	**9**	136.0	28.9	**9**	184.9	39.3	**9**	233.8	49.7	**9**	282.7	60.1
40	39.1	8.3	**90**	88.0	18.7	**140**	136.9	29.1	**190**	185.8	39.5	**240**	234.8	49.9	**290**	283.7	60.3
1	40.1	8.5	**1**	89.0	18.9	**1**	137.9	29.3	**1**	186.8	39.7	**1**	235.7	50.1	**1**	284.6	60.5
2	41.1	8.7	**2**	90.0	19.1	**2**	138.9	29.5	**2**	187.8	39.9	**2**	236.7	50.3	**2**	285.6	60.7
3	42.1	8.9	**3**	91.0	19.3	**3**	139.9	29.7	**3**	188.8	40.1	**3**	237.7	50.5	**3**	286.6	60.9
4	43.0	9.1	**4**	91.9	19.5	**4**	140.9	29.9	**4**	189.8	40.3	**4**	238.7	50.7	**4**	287.6	61.1
5	44.0	9.4	**5**	92.9	19.8	**5**	141.8	30.1	**5**	190.7	40.5	**5**	239.6	50.9	**5**	288.6	61.3
6	45.0	9.6	**6**	93.9	20.0	**6**	142.8	30.4	**6**	191.7	40.8	**6**	240.6	51.1	**6**	289.5	61.5
7	46.0	9.8	**7**	94.9	20.2	**7**	143.8	30.6	**7**	192.7	41.0	**7**	241.6	51.4	**7**	290.5	61.7
8	47.0	10.0	**8**	95.9	20.4	**8**	144.8	30.8	**8**	193.7	41.2	**8**	242.6	51.6	**8**	291.5	62.0
9	47.9	10.2	**9**	96.8	20.6	**9**	145.7	31.0	**9**	194.7	41.4	**9**	243.6	51.8	**9**	292.5	62.2
D	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ
ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap

ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap	
D	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap
300	293.4	62.4	**350**	342.4	72.8	**400**	391.3	83.2	**450**	440.2	93.6	**500**	489.1	104.0	**550**	538.0	114.4
1	294.4	62.6	**1**	343.3	73.0	**1**	392.2	83.4	**1**	441.1	93.8	**1**	490.1	104.2	**1**	539.0	114.6
2	295.4	62.8	**2**	344.3	73.2	**2**	393.2	83.6	**2**	442.1	94.0	**2**	491.0	104.4	**2**	539.9	114.8
3	296.4	63.0	**3**	345.3	73.4	**3**	394.2	83.8	**3**	443.1	94.2	**3**	492.0	104.6	**3**	540.9	115.0
4	297.4	63.2	**4**	346.3	73.6	**4**	395.2	84.0	**4**	444.1	94.4	**4**	493.0	104.8	**4**	541.9	115.2
5	298.3	63.4	**5**	347.2	73.8	**5**	396.1	84.2	**5**	445.1	94.6	**5**	494.0	105.0	**5**	542.9	115.4
6	299.3	63.6	**6**	348.2	74.0	**6**	397.1	84.4	**6**	446.0	94.8	**6**	494.9	105.2	**6**	543.8	115.6
7	300.3	63.8	**7**	349.2	74.2	**7**	398.1	84.6	**7**	447.0	95.0	**7**	495.9	105.4	**7**	544.8	115.8
8	301.3	64.0	**8**	350.2	74.4	**8**	399.1	84.8	**8**	448.0	95.2	**8**	496.9	105.6	**8**	545.8	116.0
9	302.2	64.2	**9**	351.2	74.6	**9**	400.1	85.0	**9**	449.0	95.4	**9**	497.9	105.8	**9**	546.8	116.2
310	303.2	64.5	**360**	352.1	74.8	**410**	401.0	85.2	**460**	449.9	95.6	**510**	498.9	106.0	**560**	547.8	116.4
1	304.2	64.7	**1**	353.1	75.1	**1**	402.0	85.5	**1**	450.9	95.8	**1**	499.8	106.2	**1**	548.7	116.6
2	305.2	64.9	**2**	354.1	75.3	**2**	403.0	85.7	**2**	451.9	96.1	**2**	500.8	106.5	**2**	549.7	116.8
3	306.2	65.1	**3**	355.1	75.5	**3**	404.0	85.9	**3**	452.9	96.3	**3**	501.8	106.7	**3**	550.7	117.1
4	307.1	65.3	**4**	356.0	75.7	**4**	405.0	86.1	**4**	453.9	96.5	**4**	502.8	106.9	**4**	551.7	117.3
5	308.1	65.5	**5**	357.0	75.9	**5**	405.9	86.3	**5**	454.8	96.7	**5**	503.7	107.1	**5**	552.7	117.5
6	309.1	65.7	**6**	358.0	76.1	**6**	406.9	86.5	**6**	455.8	96.9	**6**	504.7	107.3	**6**	553.6	117.7
7	310.1	65.9	**7**	359.0	76.3	**7**	407.9	86.7	**7**	456.8	97.1	**7**	505.7	107.5	**7**	554.6	117.9
8	311.1	66.1	**8**	360.0	76.5	**8**	408.9	86.9	**8**	457.8	97.3	**8**	506.7	107.7	**8**	555.6	118.1
9	312.0	66.3	**9**	360.9	76.7	**9**	409.8	87.1	**9**	458.8	97.5	**9**	507.7	107.9	**9**	556.6	118.3
320	313.0	66.5	**370**	361.9	76.9	**420**	410.8	87.3	**470**	459.7	97.7	**520**	508.6	108.1	**570**	557.5	118.5
1	314.0	66.7	**1**	362.9	77.1	**1**	411.8	87.5	**1**	460.7	97.9	**1**	509.6	108.3	**1**	558.5	118.7
2	315.0	66.9	**2**	363.9	77.3	**2**	412.8	87.7	**2**	461.7	98.1	**2**	510.6	108.5	**2**	559.5	118.9
3	315.9	67.2	**3**	364.8	77.6	**3**	413.8	87.9	**3**	462.7	98.3	**3**	511.6	108.7	**3**	560.5	119.1
4	316.9	67.4	**4**	365.8	77.8	**4**	414.7	88.2	**4**	463.6	98.6	**4**	512.5	108.9	**4**	561.5	119.3
5	317.9	67.6	**5**	366.8	78.0	**5**	415.7	88.4	**5**	464.6	98.8	**5**	513.5	109.2	**5**	562.4	119.5
6	318.9	67.8	**6**	367.8	78.2	**6**	416.7	88.6	**6**	465.6	99.0	**6**	514.5	109.4	**6**	563.4	119.8
7	319.9	68.0	**7**	368.8	78.4	**7**	417.7	88.8	**7**	466.6	99.2	**7**	515.5	109.6	**7**	564.4	120.0
8	320.8	68.2	**8**	369.7	78.6	**8**	418.6	89.0	**8**	467.6	99.4	**8**	516.5	109.8	**8**	565.4	120.2
9	321.8	68.4	**9**	370.7	78.8	**9**	419.6	89.2	**9**	468.5	99.6	**9**	517.4	110.0	**9**	566.3	120.4
330	322.8	68.6	**380**	371.7	79.0	**530**	420.6	89.4	**480**	469.5	99.8	**430**	518.4	110.2	**580**	567.3	120.6
1	323.8	68.8	**1**	372.7	79.2	**1**	421.6	89.6	**1**	470.5	100.0	**1**	519.4	110.4	**1**	568.3	120.8
2	324.7	69.0	**2**	373.7	79.4	**2**	422.6	89.8	**2**	471.5	100.2	**2**	520.4	110.6	**2**	569.3	121.0
3	325.7	69.2	**3**	374.6	79.6	**3**	423.5	90.0	**3**	472.4	100.4	**3**	521.4	110.8	**3**	570.3	121.2
4	326.7	69.4	**4**	375.6	79.8	**4**	424.5	90.2	**4**	473.4	100.6	**4**	522.3	111.0	**4**	571.2	121.4
5	327.7	69.7	**5**	376.6	80.0	**5**	425.5	90.4	**5**	474.4	100.8	**5**	523.3	111.2	**5**	572.2	121.6
6	328.7	69.9	**6**	377.6	80.3	**6**	426.5	90.6	**6**	475.4	101.0	**6**	524.3	111.4	**6**	573.2	121.8
7	329.6	70.1	**7**	378.5	80.5	**7**	427.5	90.9	**7**	476.4	101.3	**7**	525.3	111.6	**7**	574.2	122.0
8	330.6	70.3	**8**	379.5	80.7	**8**	428.4	91.1	**8**	477.3	101.5	**8**	526.2	111.9	**8**	575.2	122.3
9	331.6	70.5	**9**	380.5	80.9	**9**	429.4	91.3	**9**	478.3	101.7	**9**	527.2	112.1	**9**	576.1	122.5
340	332.6	70.7	**390**	381.5	81.1	**440**	430.4	91.5	**490**	479.3	101.9	**540**	528.2	112.3	**590**	577.1	122.7
1	333.5	70.9	**1**	382.5	81.3	**1**	431.4	91.7	**1**	480.3	102.1	**1**	529.2	112.5	**1**	578.1	122.9
2	334.5	71.1	**2**	383.4	81.5	**2**	432.3	91.9	**2**	481.2	102.3	**2**	530.2	112.7	**2**	579.1	123.1
3	335.5	71.3	**3**	384.4	81.7	**3**	433.3	92.1	**3**	482.2	102.5	**3**	531.1	112.9	**3**	580.0	123.3
4	336.5	71.5	**4**	385.4	81.9	**4**	434.3	92.3	**4**	483.2	102.7	**4**	532.1	113.1	**4**	581.0	123.5
5	337.5	71.7	**5**	386.4	82.1	**5**	435.3	92.5	**5**	484.2	102.9	**5**	533.1	113.3	**5**	582.0	123.7
6	338.4	71.9	**6**	387.3	82.3	**6**	436.3	92.7	**6**	485.2	103.1	**6**	534.1	113.5	**6**	583.0	123.9
7	339.4	72.1	**7**	388.3	82.5	**7**	437.2	92.9	**7**	486.1	103.3	**7**	535.0	113.7	**7**	584.0	124.1
8	340.4	72.4	**8**	389.3	82.7	**8**	438.2	93.1	**8**	487.1	103.5	**8**	536.0	113.9	**8**	584.9	124.3
9	341.4	72.6	**9**	390.3	83.0	**9**	439.2	93.4	**9**	488.1	103.7	**9**	537.0	114.1	**9**	585.9	124.5
D	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ
ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap

ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap	
D	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap
0	0.0	0.0	**50**	48.7	11.2	**100**	97.4	22.5	**150**	146.2	33.7	**200**	194.9	45.0	**250**	243.6	56.2
1	1.0	0.2	**1**	49.7	11.5	**1**	98.4	22.7	**1**	147.1	34.0	**1**	195.8	45.2	**1**	244.6	56.5
2	1.9	0.4	**2**	50.7	11.7	**2**	99.4	22.9	**2**	148.1	34.2	**2**	196.8	45.4	**2**	245.5	56.7
3	2.9	0.7	**3**	51.6	11.9	**3**	100.4	23.2	**3**	149.1	34.4	**3**	197.8	45.7	**3**	246.5	56.9
4	3.9	0.9	**4**	52.6	12.1	**4**	101.3	23.4	**4**	150.1	34.6	**4**	198.8	45.9	**4**	247.5	57.1
5	4.9	1.1	**5**	53.6	12.4	**5**	102.3	23.6	**5**	151.0	34.9	**5**	199.7	46.1	**5**	248.5	57.4
6	5.8	1.3	**6**	54.6	12.6	**6**	103.3	23.8	**6**	152.0	35.1	**6**	200.7	46.3	**6**	249.4	57.6
7	6.8	1.6	**7**	55.5	12.8	**7**	104.3	24.1	**7**	153.0	35.3	**7**	201.7	46.6	**7**	250.4	57.8
8	7.8	1.8	**8**	56.5	13.0	**8**	105.2	24.3	**8**	154.0	35.5	**8**	202.7	46.8	**8**	251.4	58.0
9	8.8	2.0	**9**	57.5	13.3	**9**	106.2	24.5	**9**	154.9	35.8	**9**	203.6	47.0	**9**	252.4	58.3
10	9.7	2.2	**60**	58.5	13.5	**110**	107.2	24.7	**160**	155.9	36.0	**210**	204.6	47.2	**260**	253.3	58.5
1	10.7	2.5	**1**	59.4	13.7	**1**	108.2	25.0	**1**	156.9	36.2	**1**	205.6	47.5	**1**	254.3	58.7
2	11.7	2.7	**2**	60.4	13.9	**2**	109.1	25.2	**2**	157.8	36.4	**2**	206.6	47.7	**2**	255.3	58.9
3	12.7	2.9	**3**	61.4	14.2	**3**	110.1	25.4	**3**	158.8	36.7	**3**	207.5	47.9	**3**	256.3	59.2
4	13.6	3.1	**4**	62.4	14.4	**4**	111.1	25.6	**4**	159.8	36.9	**4**	208.5	48.1	**4**	257.2	59.4
5	14.6	3.4	**5**	63.3	14.6	**5**	112.1	25.9	**5**	160.8	37.1	**5**	209.5	48.4	**5**	258.2	59.6
6	15.6	3.6	**6**	64.3	14.8	**6**	113.0	26.1	**6**	161.7	37.3	**6**	210.5	48.6	**6**	259.2	59.8
7	16.6	3.8	**7**	65.3	15.1	**7**	114.0	26.3	**7**	162.7	37.6	**7**	211.4	48.8	**7**	260.2	60.1
8	17.5	4.0	**8**	66.3	15.3	**8**	115.0	26.5	**8**	163.7	37.8	**8**	212.4	49.0	**8**	261.1	60.3
9	18.5	4.3	**9**	67.2	15.5	**9**	116.0	26.8	**9**	164.7	38.0	**9**	213.4	49.3	**9**	262.1	60.5
20	19.5	4.5	**70**	68.2	15.7	**120**	116.9	27.0	**170**	165.6	38.2	**220**	214.4	49.5	**270**	263.1	60.7
1	20.5	4.7	**1**	69.2	16.0	**1**	117.9	27.2	**1**	166.6	38.5	**1**	215.3	49.7	**1**	264.1	61.0
2	21.4	4.9	**2**	70.2	16.2	**2**	118.9	27.4	**2**	167.6	38.7	**2**	216.3	49.9	**2**	265.0	61.2
3	22.4	5.2	**3**	71.1	16.4	**3**	119.8	27.7	**3**	168.6	38.9	**3**	217.3	50.2	**3**	266.0	61.4
4	23.4	5.4	**4**	72.1	16.6	**4**	120.8	27.9	**4**	169.5	39.1	**4**	218.3	50.4	**4**	267.0	61.6
5	24.4	5.6	**5**	73.1	16.9	**5**	121.8	28.1	**5**	170.5	39.4	**5**	219.2	50.6	**5**	268.0	61.9
6	25.3	5.8	**6**	74.1	17.1	**6**	122.8	28.3	**6**	171.5	39.6	**6**	220.2	50.8	**6**	268.9	62.1
7	26.3	6.1	**7**	75.0	17.3	**7**	123.7	28.6	**7**	172.5	39.8	**7**	221.2	51.1	**7**	269.9	62.3
8	27.3	6.3	**8**	76.0	17.5	**8**	124.7	28.8	**8**	173.4	40.0	**8**	222.2	51.3	**8**	270.9	62.5
9	28.3	6.5	**9**	77.0	17.8	**9**	125.7	29.0	**9**	174.4	40.3	**9**	223.1	51.5	**9**	271.8	62.8
30	29.2	6.7	**80**	77.9	18.0	**130**	126.7	29.2	**180**	175.4	40.5	**230**	224.1	51.7	**280**	272.8	63.0
1	30.2	7.0	**1**	78.9	18.2	**1**	127.6	29.5	**1**	176.4	40.7	**1**	225.1	52.0	**1**	273.8	63.2
2	31.2	7.2	**2**	79.9	18.4	**2**	128.6	29.7	**2**	177.3	40.9	**2**	226.1	52.2	**2**	274.8	63.4
3	32.2	7.4	**3**	80.9	18.7	**3**	129.6	29.9	**3**	178.3	41.2	**3**	227.0	52.4	**3**	275.7	63.7
4	33.1	7.6	**4**	81.8	18.9	**4**	130.6	30.1	**4**	179.3	41.4	**4**	228.0	52.6	**4**	276.7	63.9
5	34.1	7.9	**5**	82.8	19.1	**5**	131.5	30.4	**5**	180.3	41.6	**5**	229.0	52.9	**5**	277.7	64.1
6	35.1	8.1	**6**	83.8	19.3	**6**	132.5	30.6	**6**	181.2	41.8	**6**	230.0	53.1	**6**	278.7	64.3
7	36.1	8.3	**7**	84.8	19.6	**7**	133.5	30.8	**7**	182.2	42.1	**7**	230.9	53.3	**7**	279.6	64.6
8	37.0	8.5	**8**	85.7	19.8	**8**	134.5	31.0	**8**	183.2	42.3	**8**	231.9	53.5	**8**	280.6	64.8
9	38.0	8.8	**9**	86.7	20.0	**9**	135.4	31.3	**9**	184.2	42.5	**9**	232.9	53.8	**9**	281.6	65.0
40	39.0	9.0	**90**	87.7	20.2	**140**	136.4	31.5	**190**	185.1	42.7	**240**	233.8	54.0	**290**	282.6	65.2
1	39.9	9.2	**1**	88.7	20.5	**1**	137.4	31.7	**1**	186.1	43.0	**1**	234.8	54.2	**1**	283.5	65.5
2	40.9	9.4	**2**	89.6	20.7	**2**	138.4	31.9	**2**	187.1	43.2	**2**	235.8	54.4	**2**	284.5	65.7
3	41.9	9.7	**3**	90.6	20.9	**3**	139.3	32.2	**3**	188.1	43.4	**3**	236.8	54.7	**3**	285.5	65.9
4	42.9	9.9	**4**	91.6	21.1	**4**	140.3	32.4	**4**	189.0	43.6	**4**	237.7	54.9	**4**	286.5	66.1
5	43.8	10.1	**5**	92.6	21.4	**5**	141.3	32.6	**5**	190.0	43.9	**5**	238.7	55.1	**5**	287.4	66.4
6	44.8	10.3	**6**	93.5	21.6	**6**	142.3	32.8	**6**	191.0	44.1	**6**	239.7	55.3	**6**	288.4	66.6
7	45.8	10.6	**7**	94.5	21.8	**7**	143.2	33.1	**7**	192.0	44.3	**7**	240.7	55.6	**7**	289.4	66.8
8	46.8	10.8	**8**	95.5	22.0	**8**	144.2	33.3	**8**	192.9	44.5	**8**	241.6	55.8	**8**	290.4	67.0
9	47.7	11.0	**9**	96.5	22.3	**9**	145.2	33.5	**9**	193.9	44.8	**9**	242.6	56.0	**9**	291.3	67.3
D	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ
ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap

ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap	
D	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap
300	292.3	67.5	**350**	341.0	78.7	**400**	389.7	90.0	**450**	438.5	101.2	**500**	487.2	112.5	**550**	535.9	123.7
1	293.3	67.7	**1**	342.0	79.0	**1**	390.7	90.2	**1**	439.4	101.5	**1**	488.2	112.7	**1**	536.9	123.9
2	294.3	67.9	**2**	343.0	79.2	**2**	391.7	90.4	**2**	440.4	101.7	**2**	489.1	112.9	**2**	537.9	124.2
3	295.2	68.2	**3**	344.0	79.4	**3**	392.7	90.7	**3**	441.4	101.9	**3**	490.1	113.2	**3**	538.8	124.4
4	296.2	68.4	**4**	344.9	79.6	**4**	393.6	90.9	**4**	442.4	102.1	**4**	491.1	113.4	**4**	539.8	124.6
5	297.2	68.6	**5**	345.9	79.9	**5**	394.6	91.1	**5**	443.3	102.4	**5**	492.1	113.6	**5**	540.8	124.8
6	298.2	68.8	**6**	346.9	80.1	**6**	395.6	91.3	**6**	444.3	102.6	**6**	493.0	113.8	**6**	541.7	125.1
7	299.1	69.1	**7**	347.9	80.3	**7**	396.6	91.6	**7**	445.3	102.8	**7**	494.0	114.1	**7**	542.7	125.3
8	300.1	69.3	**8**	348.8	80.5	**8**	397.5	91.8	**8**	446.3	103.0	**8**	495.0	114.3	**8**	543.7	125.5
9	301.1	69.5	**9**	349.8	80.8	**9**	398.5	92.0	**9**	447.2	103.3	**9**	496.0	114.5	**9**	544.7	125.7
310	302.1	69.7	**360**	350.8	81.0	**410**	399.5	92.2	**460**	448.2	103.5	**510**	496.9	114.7	**560**	545.6	126.0
1	303.0	70.0	**1**	351.7	81.2	**1**	400.5	92.5	**1**	449.2	103.7	**1**	497.9	114.9	**1**	546.6	126.2
2	304.0	70.2	**2**	352.7	81.4	**2**	401.4	92.7	**2**	450.2	103.9	**2**	498.9	115.2	**2**	547.6	126.4
3	305.0	70.4	**3**	353.7	81.7	**3**	402.4	92.9	**3**	451.1	104.2	**3**	499.9	115.4	**3**	548.6	126.6
4	306.0	70.6	**4**	354.7	81.9	**4**	403.4	93.1	**4**	452.1	104.4	**4**	500.8	115.6	**4**	549.5	126.9
5	306.9	70.9	**5**	355.6	82.1	**5**	404.4	93.4	**5**	453.1	104.6	**5**	501.8	115.8	**5**	550.5	127.1
6	307.9	71.1	**6**	356.6	82.3	**6**	405.3	93.6	**6**	454.1	104.8	**6**	502.8	116.1	**6**	551.5	127.3
7	308.9	71.3	**7**	357.6	82.6	**7**	406.3	93.8	**7**	455.0	105.1	**7**	503.7	116.3	**7**	552.5	127.5
8	309.8	71.5	**8**	358.6	82.8	**8**	407.3	94.0	**8**	456.0	105.3	**8**	504.7	116.5	**8**	553.4	127.8
9	310.8	71.8	**9**	359.5	83.0	**9**	408.3	94.3	**9**	457.0	105.5	**9**	505.7	116.7	**9**	554.4	128.0
320	311.8	72.0	**370**	360.5	83.2	**420**	409.2	94.5	**470**	458.0	105.7	**520**	506.7	117.0	**570**	555.4	128.2
1	312.8	72.2	**1**	361.5	83.5	**1**	410.2	94.7	**1**	458.9	106.0	**1**	507.6	117.2	**1**	556.4	128.4
2	313.7	72.4	**2**	362.5	83.7	**2**	411.2	94.9	**2**	459.9	106.2	**2**	508.6	117.4	**2**	557.3	128.7
3	314.7	72.7	**3**	363.4	83.9	**3**	412.2	95.2	**3**	460.9	106.4	**3**	509.6	117.6	**3**	558.3	128.9
4	315.7	72.9	**4**	364.4	84.1	**4**	413.1	95.4	**4**	461.9	106.6	**4**	510.6	117.9	**4**	559.3	129.1
5	316.7	73.1	**5**	365.4	84.4	**5**	414.1	95.6	**5**	462.8	106.9	**5**	511.5	118.1	**5**	560.3	129.3
6	317.6	73.3	**6**	366.4	84.6	**6**	415.1	95.8	**6**	463.8	107.1	**6**	512.5	118.3	**6**	561.2	129.6
7	318.6	73.6	**7**	367.3	84.8	**7**	416.1	96.1	**7**	464.8	107.3	**7**	513.5	118.5	**7**	562.2	129.8
8	319.6	73.8	**8**	368.3	85.0	**8**	417.0	96.3	**8**	465.7	107.5	**8**	514.5	118.8	**8**	563.2	130.0
9	320.6	74.0	**9**	369.3	85.3	**9**	418.0	96.5	**9**	466.7	107.8	**9**	515.4	119.0	**9**	564.2	130.2
330	321.5	74.2	**380**	370.3	85.5	**430**	419.0	96.7	**480**	467.7	108.0	**530**	516.4	119.2	**580**	565.1	130.5
1	322.5	74.5	**1**	371.2	85.7	**1**	420.0	97.0	**1**	468.7	108.2	**1**	517.4	119.4	**1**	566.1	130.7
2	323.5	74.7	**2**	372.2	85.9	**2**	420.9	97.2	**2**	469.6	108.4	**2**	518.4	119.7	**2**	567.1	130.9
3	324.5	74.9	**3**	373.2	86.2	**3**	421.9	97.4	**3**	470.6	108.7	**3**	519.3	119.9	**3**	568.1	131.1
4	325.4	75.1	**4**	374.2	86.4	**4**	422.9	97.6	**4**	471.6	108.9	**4**	520.3	120.1	**4**	569.0	131.4
5	326.4	75.4	**5**	375.1	86.6	**5**	423.9	97.9	**5**	472.6	109.1	**5**	521.3	120.3	**5**	570.0	131.6
6	327.4	75.6	**6**	376.1	86.8	**6**	424.8	98.1	**6**	473.5	109.3	**6**	522.3	120.6	**6**	571.0	131.8
7	328.4	75.8	**7**	377.1	87.1	**7**	425.8	98.3	**7**	474.5	109.6	**7**	523.2	120.8	**7**	572.0	132.0
8	329.3	76.0	**8**	378.1	87.3	**8**	426.8	98.5	**8**	475.5	109.8	**8**	524.2	121.0	**8**	572.9	132.3
9	330.3	76.3	**9**	379.0	87.5	**9**	427.7	98.8	**9**	476.5	110.0	**9**	525.2	121.2	**9**	573.9	132.5
340	331.3	76.5	**390**	380.0	87.7	**440**	428.7	99.0	**490**	477.4	110.2	**540**	526.2	121.5	**590**	574.9	132.7
1	332.3	76.7	**1**	381.0	88.0	**1**	429.7	99.2	**1**	478.4	110.5	**1**	527.1	121.7	**1**	575.9	132.9
2	333.2	76.9	**2**	382.0	88.2	**2**	430.7	99.4	**2**	479.4	110.7	**2**	528.1	121.9	**2**	576.8	133.2
3	334.2	77.2	**3**	382.9	88.4	**3**	431.6	99.7	**3**	480.4	110.9	**3**	529.1	122.1	**3**	577.8	133.4
4	335.2	77.4	**4**	383.9	88.6	**4**	432.6	99.9	**4**	481.3	111.1	**4**	530.1	122.4	**4**	578.8	133.6
5	336.2	77.6	**5**	384.9	88.9	**5**	433.6	100.1	**5**	482.3	111.4	**5**	531.0	122.6	**5**	579.8	133.8
6	337.1	77.8	**6**	385.9	89.1	**6**	434.6	100.3	**6**	483.3	111.6	**6**	532.0	122.8	**6**	580.7	134.1
7	338.1	78.1	**7**	386.8	89.3	**7**	435.5	100.6	**7**	484.3	111.8	**7**	533.0	123.0	**7**	581.7	134.3
8	339.1	78.3	**8**	387.8	89.5	**8**	436.5	100.8	**8**	485.2	112.0	**8**	534.0	123.3	**8**	582.7	134.5
9	340.1	78.5	**9**	388.8	89.8	**9**	437.5	101.0	**9**	486.2	112.3	**9**	534.9	123.5	**9**	583.6	134.7
D	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ
ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap

ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap	
D	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap
0	0.0	0.0	**50**	48.5	12.1	**100**	97.0	24.2	**150**	145.5	36.3	**200**	194.1	48.4	**250**	242.6	60.5
1	1.0	0.2	**1**	49.5	12.3	**1**	98.0	24.4	**1**	146.5	36.5	**1**	195.0	48.6	**1**	243.5	60.7
2	1.9	0.5	**2**	50.5	12.6	**2**	99.0	24.7	**2**	147.5	36.8	**2**	196.0	48.9	**2**	244.5	61.0
3	2.9	0.7	**3**	51.4	12.8	**3**	99.9	24.9	**3**	148.5	37.0	**3**	197.0	49.1	**3**	245.5	61.2
4	3.9	1.0	**4**	52.4	13.1	**4**	100.9	25.2	**4**	149.4	37.3	**4**	197.9	49.4	**4**	246.5	61.4
5	4.9	1.2	**5**	53.4	13.3	**5**	101.9	25.4	**5**	150.4	37.5	**5**	198.9	49.6	**5**	247.4	61.7
6	5.8	1.5	**6**	54.3	13.5	**6**	102.9	25.6	**6**	151.4	37.7	**6**	199.9	49.8	**6**	248.4	61.9
7	6.8	1.7	**7**	55.3	13.8	**7**	103.8	25.9	**7**	152.3	38.0	**7**	200.9	50.1	**7**	249.4	62.2
8	7.8	1.9	**8**	56.3	14.0	**8**	104.8	26.1	**8**	153.3	38.2	**8**	201.8	50.3	**8**	250.3	62.4
9	8.7	2.2	**9**	57.2	14.3	**9**	105.8	26.4	**9**	154.3	38.5	**9**	202.8	50.6	**9**	251.3	62.7
10	9.7	2.4	**60**	58.2	14.5	**110**	106.7	26.6	**160**	155.2	38.7	**210**	203.8	50.8	**260**	252.3	62.9
1	10.7	2.7	**1**	59.2	14.8	**1**	107.7	26.9	**1**	156.2	38.9	**1**	204.7	51.0	**1**	253.2	63.1
2	11.6	2.9	**2**	60.2	15.0	**2**	108.7	27.1	**2**	157.2	39.2	**2**	205.7	51.3	**2**	254.2	63.4
3	12.6	3.1	**3**	61.1	15.2	**3**	109.6	27.3	**3**	158.2	39.4	**3**	206.7	51.5	**3**	255.2	63.6
4	13.6	3.4	**4**	62.1	15.5	**4**	110.6	27.6	**4**	159.1	39.7	**4**	207.6	51.8	**4**	256.2	63.9
5	14.6	3.6	**5**	63.1	15.7	**5**	111.6	27.8	**5**	160.1	39.9	**5**	208.6	52.0	**5**	257.1	64.1
6	15.5	3.9	**6**	64.0	16.0	**6**	112.6	28.1	**6**	161.1	40.2	**6**	209.6	52.3	**6**	258.1	64.4
7	16.5	4.1	**7**	65.0	16.2	**7**	113.5	28.3	**7**	162.0	40.4	**7**	210.6	52.5	**7**	259.1	64.6
8	17.5	4.4	**8**	66.0	16.5	**8**	114.5	28.5	**8**	163.0	40.6	**8**	211.5	52.7	**8**	260.0	64.8
9	18.4	4.6	**9**	67.0	16.7	**9**	115.5	28.8	**9**	164.0	40.9	**9**	212.5	53.0	**9**	261.0	65.1
20	19.4	4.8	**70**	67.9	16.9	**120**	116.4	29.0	**170**	165.0	41.1	**220**	213.5	53.2	**270**	262.0	65.3
1	20.4	5.1	**1**	68.9	17.2	**1**	117.4	29.3	**1**	165.9	41.4	**1**	214.4	53.5	**1**	262.9	65.6
2	21.3	5.3	**2**	69.9	17.4	**2**	118.4	29.5	**2**	166.9	41.6	**2**	215.4	53.7	**2**	263.9	65.8
3	22.3	5.6	**3**	70.8	17.7	**3**	119.3	29.8	**3**	167.9	41.9	**3**	216.4	53.9	**3**	264.9	66.0
4	23.3	5.8	**4**	71.8	17.9	**4**	120.3	30.0	**4**	168.8	42.1	**4**	217.3	54.2	**4**	265.9	66.3
5	24.3	6.0	**5**	72.8	18.1	**5**	121.3	30.2	**5**	169.8	42.3	**5**	218.3	54.4	**5**	266.8	66.5
6	25.2	6.3	**6**	73.7	18.4	**6**	122.3	30.5	**6**	170.8	42.6	**6**	219.3	54.7	**6**	267.8	66.8
7	26.2	6.5	**7**	74.7	18.6	**7**	123.2	30.7	**7**	171.7	42.8	**7**	220.3	54.9	**7**	268.8	67.0
8	27.2	6.8	**8**	75.7	18.9	**8**	124.2	31.0	**8**	172.7	43.1	**8**	221.2	55.2	**8**	269.7	67.3
9	28.1	7.0	**9**	76.7	19.1	**9**	125.2	31.2	**9**	173.7	43.3	**9**	222.2	55.4	**9**	270.7	67.5
30	29.1	7.3	**80**	77.6	19.4	**130**	126.1	31.4	**180**	174.7	43.5	**230**	223.2	55.6	**280**	271.7	67.7
1	30.1	7.5	**1**	78.6	19.6	**1**	127.1	31.7	**1**	175.6	43.8	**1**	224.1	55.9	**1**	272.7	68.0
2	31.0	7.7	**2**	79.6	19.8	**2**	128.1	31.9	**2**	176.6	44.0	**2**	225.1	56.1	**2**	273.6	68.2
3	32.0	8.0	**3**	80.5	20.1	**3**	129.0	32.2	**3**	177.6	44.3	**3**	226.1	56.4	**3**	274.6	68.5
4	33.0	8.2	**4**	81.5	20.3	**4**	130.0	32.4	**4**	178.5	44.5	**4**	227.0	56.6	**4**	275.6	68.7
5	34.0	8.5	**5**	82.5	20.6	**5**	131.0	32.7	**5**	179.5	44.8	**5**	228.0	56.9	**5**	276.5	68.9
6	34.9	8.7	**6**	83.4	20.8	**6**	132.0	32.9	**6**	180.5	45.0	**6**	229.0	57.1	**6**	277.5	69.2
7	35.9	9.0	**7**	84.4	21.0	**7**	132.9	33.1	**7**	181.4	45.2	**7**	230.0	57.3	**7**	278.5	69.4
8	36.9	9.2	**8**	85.4	21.3	**8**	133.9	33.4	**8**	182.4	45.5	**8**	230.9	57.6	**8**	279.4	69.7
9	37.8	9.4	**9**	86.4	21.5	**9**	134.9	33.6	**9**	183.4	45.7	**9**	231.9	57.8	**9**	280.4	69.9
40	38.8	9.7	**90**	87.3	21.8	**140**	135.8	33.9	**190**	184.4	46.0	**240**	232.9	58.1	**290**	281.4	70.2
1	39.8	9.9	**1**	88.3	22.0	**1**	136.8	34.1	**1**	185.3	46.2	**1**	233.8	58.3	**1**	282.4	70.4
2	40.8	10.2	**2**	89.3	22.3	**2**	137.8	34.4	**2**	186.3	46.4	**2**	234.8	58.5	**2**	283.3	70.6
3	41.7	10.4	**3**	90.2	22.5	**3**	138.8	34.6	**3**	187.3	46.7	**3**	235.8	58.8	**3**	284.3	70.9
4	42.7	10.6	**4**	91.2	22.7	**4**	139.7	34.8	**4**	188.2	46.9	**4**	236.8	59.0	**4**	285.3	71.1
5	43.7	10.9	**5**	92.2	23.0	**5**	140.7	35.1	**5**	189.2	47.2	**5**	237.7	59.3	**5**	286.2	71.4
6	44.6	11.1	**6**	93.1	23.2	**6**	141.7	35.3	**6**	190.2	47.4	**6**	238.7	59.5	**6**	287.2	71.6
7	45.6	11.4	**7**	94.1	23.5	**7**	142.6	35.6	**7**	191.1	47.7	**7**	239.7	59.8	**7**	288.2	71.9
8	46.6	11.6	**8**	95.1	23.7	**8**	143.6	35.8	**8**	192.1	47.9	**8**	240.6	60.0	**8**	289.1	72.1
9	47.5	11.9	**9**	96.1	24.0	**9**	144.6	36.0	**9**	193.1	48.1	**9**	241.6	60.2	**9**	290.1	72.3
D	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ
ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap

ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap	
D	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap
300	291.1	72.6	**350**	339.6	84.7	**400**	388.1	96.8	**450**	436.6	108.9	**500**	485.1	121.0	**550**	533.7	133.1
1	292.1	72.8	**1**	340.6	84.9	**1**	389.1	97.0	**1**	437.6	109.1	**1**	486.1	121.2	**1**	534.6	133.3
2	293.0	73.1	**2**	341.5	85.2	**2**	390.1	97.3	**2**	438.6	109.3	**2**	487.1	121.4	**2**	535.6	133.5
3	294.0	73.3	**3**	342.5	85.4	**3**	391.0	97.5	**3**	439.5	109.6	**3**	488.1	121.7	**3**	536.6	133.8
4	295.0	73.5	**4**	343.5	85.6	**4**	392.0	97.7	**4**	440.5	109.8	**4**	489.0	121.9	**4**	537.5	134.0
5	295.9	73.8	**5**	344.5	85.9	**5**	393.0	98.0	**5**	441.5	110.1	**5**	490.0	122.2	**5**	538.5	134.3
6	296.9	74.0	**6**	345.4	86.1	**6**	393.9	98.2	**6**	442.5	110.3	**6**	491.0	122.4	**6**	539.5	134.5
7	297.9	74.3	**7**	346.4	86.4	**7**	394.9	98.5	**7**	443.4	110.6	**7**	491.9	122.7	**7**	540.5	134.8
8	298.9	74.5	**8**	347.4	86.6	**8**	395.9	98.7	**8**	444.4	110.8	**8**	492.9	122.9	**8**	541.4	135.0
9	299.8	74.8	**9**	348.3	86.8	**9**	396.9	98.9	**9**	445.4	111.0	**9**	493.9	123.1	**9**	542.4	135.2
310	300.8	75.0	**360**	349.3	87.1	**410**	397.8	99.2	**460**	446.3	111.3	**510**	494.9	123.4	**560**	543.4	135.5
1	301.8	75.2	**1**	350.3	87.3	**1**	398.8	99.4	**1**	447.3	111.5	**1**	495.8	123.6	**1**	544.3	135.7
2	302.7	75.5	**2**	351.2	87.6	**2**	399.8	99.7	**2**	448.3	111.8	**2**	496.8	123.9	**2**	545.3	136.0
3	303.7	75.7	**3**	352.2	87.8	**3**	400.7	99.9	**3**	449.2	112.0	**3**	497.8	124.1	**3**	546.3	136.2
4	304.7	76.0	**4**	353.2	88.1	**4**	401.7	100.2	**4**	450.2	112.3	**4**	498.7	124.3	**4**	547.2	136.4
5	305.6	76.2	**5**	354.2	88.3	**5**	402.7	100.4	**5**	451.2	112.5	**5**	499.7	124.6	**5**	548.2	136.7
6	306.6	76.4	**6**	355.1	88.5	**6**	403.6	100.6	**6**	452.2	112.7	**6**	500.7	124.8	**6**	549.2	136.9
7	307.6	76.7	**7**	356.1	88.8	**7**	404.6	100.9	**7**	453.1	113.0	**7**	501.6	125.1	**7**	550.2	137.2
8	308.6	76.9	**8**	357.1	89.0	**8**	405.6	101.1	**8**	454.1	113.2	**8**	502.6	125.3	**8**	551.1	137.4
9	309.5	77.2	**9**	358.0	89.3	**9**	406.6	101.4	**9**	455.1	113.5	**9**	503.6	125.6	**9**	552.1	137.7
320	310.5	77.4	**370**	359.0	89.5	**420**	407.5	101.6	**470**	456.0	113.7	**520**	504.6	125.8	**570**	553.1	137.9
1	311.5	77.7	**1**	360.0	89.8	**1**	408.5	101.8	**1**	457.0	113.9	**1**	505.5	126.0	**1**	554.0	138.1
2	312.4	77.9	**2**	360.9	90.0	**2**	409.5	102.1	**2**	458.0	114.2	**2**	506.5	126.3	**2**	555.0	138.4
3	313.4	78.1	**3**	361.9	90.2	**3**	410.4	102.3	**3**	458.9	114.4	**3**	507.5	126.5	**3**	556.0	138.6
4	314.4	78.4	**4**	362.9	90.5	**4**	411.4	102.6	**4**	459.9	114.7	**4**	508.4	126.8	**4**	556.9	138.9
5	315.3	78.6	**5**	363.9	90.7	**5**	412.4	102.8	**5**	460.9	114.9	**5**	509.4	127.0	**5**	557.9	139.1
6	316.3	78.9	**6**	364.8	91.0	**6**	413.3	103.1	**6**	461.9	115.2	**6**	510.4	127.3	**6**	558.9	139.3
7	317.3	79.1	**7**	365.8	91.2	**7**	414.3	103.3	**7**	462.8	115.4	**7**	511.3	127.5	**7**	559.9	139.6
8	318.3	79.4	**8**	366.8	91.4	**8**	415.3	103.5	**8**	463.8	115.6	**8**	512.3	127.7	**8**	560.8	139.8
9	319.2	79.6	**9**	367.7	91.7	**9**	416.3	103.8	**9**	464.8	115.9	**9**	513.3	128.0	**9**	561.8	140.1
330	320.2	79.8	**380**	368.7	91.9	**430**	417.2	104.0	**480**	465.7	116.1	**530**	514.3	128.2	**580**	562.8	140.3
1	321.2	80.1	**1**	369.7	92.2	**1**	418.2	104.3	**1**	466.7	116.4	**1**	515.2	128.5	**1**	563.7	140.6
2	322.1	80.3	**2**	370.7	92.4	**2**	419.2	104.5	**2**	467.7	116.6	**2**	516.2	128.7	**2**	564.7	140.8
3	323.1	80.6	**3**	371.6	92.7	**3**	420.1	104.8	**3**	468.7	116.8	**3**	517.2	128.9	**3**	565.7	141.0
4	324.1	80.8	**4**	372.6	92.9	**4**	421.1	105.0	**4**	469.6	117.1	**4**	518.1	129.2	**4**	566.7	141.3
5	325.0	81.0	**5**	373.6	93.1	**5**	422.1	105.2	**5**	470.6	117.3	**5**	519.1	129.4	**5**	567.6	141.5
6	326.0	81.3	**6**	374.5	93.4	**6**	423.0	105.5	**6**	471.6	117.6	**6**	520.1	129.7	**6**	568.6	141.8
7	327.0	81.5	**7**	375.5	93.6	**7**	424.0	105.7	**7**	472.5	117.8	**7**	521.0	129.9	**7**	569.6	142.0
8	328.0	81.8	**8**	376.5	93.9	**8**	425.0	106.0	**8**	473.5	118.1	**8**	522.0	130.2	**8**	570.5	142.3
9	328.9	82.0	**9**	377.4	94.1	**9**	426.0	106.2	**9**	474.5	118.3	**9**	523.0	130.4	**9**	571.5	142.5
340	329.9	82.3	**390**	378.4	94.3	**440**	426.9	106.4	**490**	475.4	118.5	**540**	524.0	130.6	**590**	572.5	142.7
1	330.9	82.5	**1**	379.4	94.6	**1**	427.9	106.7	**1**	476.4	118.8	**1**	524.9	130.9	**1**	573.4	143.0
2	331.8	82.7	**2**	380.4	94.8	**2**	428.9	106.9	**2**	477.4	119.0	**2**	525.9	131.1	**2**	574.4	143.2
3	332.8	83.0	**3**	381.3	95.1	**3**	429.8	107.2	**3**	478.4	119.3	**3**	526.9	131.4	**3**	575.4	143.5
4	333.8	83.2	**4**	382.3	95.3	**4**	430.8	107.4	**4**	479.3	119.5	**4**	527.8	131.6	**4**	576.4	143.7
5	334.8	83.5	**5**	383.3	95.6	**5**	431.8	107.7	**5**	480.3	119.8	**5**	528.8	131.8	**5**	577.3	143.9
6	335.7	83.7	**6**	384.2	95.8	**6**	432.8	107.9	**6**	481.3	120.0	**6**	529.8	132.1	**6**	578.3	144.2
7	336.7	83.9	**7**	385.2	96.0	**7**	433.7	108.1	**7**	482.2	120.2	**7**	530.8	132.3	**7**	579.3	144.4
8	337.7	84.2	**8**	386.2	96.3	**8**	434.7	108.4	**8**	483.2	120.5	**8**	531.7	132.6	**8**	580.2	144.7
9	338.6	84.4	**9**	387.1	96.5	**9**	435.7	108.6	**9**	484.2	120.7	**9**	532.7	132.8	**9**	581.2	144.9
D	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ
ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap

ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap	
D	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap
0	0.0	0.0	**50**	48.3	12.9	**100**	96.6	25.9	**150**	144.9	38.8	**200**	193.2	51.8	**250**	241.5	64.7
1	1.0	0.3	**1**	49.3	13.2	**1**	97.6	26.1	**1**	145.9	39.1	**1**	194.2	52.0	**1**	242.4	65.0
2	1.9	0.5	**2**	50.2	13.5	**2**	98.5	26.4	**2**	146.8	39.3	**2**	195.1	52.3	**2**	243.4	65.2
3	2.9	0.8	**3**	51.2	13.7	**3**	99.5	26.7	**3**	147.8	39.6	**3**	196.1	52.5	**3**	244.4	65.5
4	3.9	1.0	**4**	52.2	14.0	**4**	100.5	26.9	**4**	148.8	39.9	**4**	197.0	52.8	**4**	245.3	65.7
5	4.8	1.3	**5**	53.1	14.2	**5**	101.4	27.2	**5**	149.7	40.1	**5**	198.0	53.1	**5**	246.3	66.0
6	5.8	1.6	**6**	54.1	14.5	**6**	102.4	27.4	**6**	150.7	40.4	**6**	199.0	53.3	**6**	247.3	66.3
7	6.8	1.8	**7**	55.1	14.8	**7**	103.4	27.7	**7**	151.7	40.6	**7**	199.9	53.6	**7**	248.2	66.5
8	7.7	2.1	**8**	56.0	15.0	**8**	104.3	28.0	**8**	152.6	40.9	**8**	200.9	53.8	**8**	249.2	66.8
9	8.7	2.3	**9**	57.0	15.3	**9**	105.3	28.2	**9**	153.6	41.2	**9**	201.9	54.1	**9**	250.2	67.0
10	9.7	2.6	**60**	58.0	15.5	**110**	106.3	28.5	**160**	154.5	41.4	**210**	202.8	54.4	**260**	251.1	67.3
1	10.6	2.8	**1**	58.9	15.8	**1**	107.2	28.7	**1**	155.5	41.7	**1**	203.8	54.6	**1**	252.1	67.6
2	11.6	3.1	**2**	59.9	16.0	**2**	108.2	29.0	**2**	156.5	41.9	**2**	204.8	54.9	**2**	253.1	67.8
3	12.6	3.4	**3**	60.9	16.3	**3**	109.1	29.2	**3**	157.4	42.2	**3**	205.7	55.1	**3**	254.0	68.1
4	13.5	3.6	**4**	61.8	16.6	**4**	110.1	29.5	**4**	158.4	42.4	**4**	206.7	55.4	**4**	255.0	68.3
5	14.5	3.9	**5**	62.8	16.8	**5**	111.1	29.8	**5**	159.4	42.7	**5**	207.7	55.6	**5**	256.0	68.6
6	15.5	4.1	**6**	63.8	17.1	**6**	112.0	30.0	**6**	160.3	43.0	**6**	208.6	55.9	**6**	256.9	68.8
7	16.4	4.4	**7**	64.7	17.3	**7**	113.0	30.3	**7**	161.3	43.2	**7**	209.6	56.2	**7**	257.9	69.1
8	17.4	4.7	**8**	65.7	17.6	**8**	114.0	30.5	**8**	162.3	43.5	**8**	210.6	56.4	**8**	258.9	69.4
9	18.4	4.9	**9**	66.6	17.9	**9**	114.9	30.8	**9**	163.2	43.7	**9**	211.5	56.7	**9**	259.8	69.6
20	19.3	5.2	**70**	67.6	18.1	**120**	115.9	31.1	**170**	164.2	44.0	**220**	212.5	56.9	**270**	260.8	69.9
1	20.3	5.4	**1**	68.6	18.4	**1**	116.9	31.3	**1**	165.2	44.3	**1**	213.5	57.2	**1**	261.8	70.1
2	21.3	5.7	**2**	69.5	18.6	**2**	117.8	31.6	**2**	166.1	44.5	**2**	214.4	57.5	**2**	262.7	70.4
3	22.2	6.0	**3**	70.5	18.9	**3**	118.8	31.8	**3**	167.1	44.8	**3**	215.4	57.7	**3**	263.7	70.7
4	23.2	6.2	**4**	71.5	19.2	**4**	119.8	32.1	**4**	168.1	45.0	**4**	216.4	58.0	**4**	264.7	70.9
5	24.1	6.5	**5**	72.4	19.4	**5**	120.7	32.4	**5**	169.0	45.3	**5**	217.3	58.2	**5**	265.6	71.2
6	25.1	6.7	**6**	73.4	19.7	**6**	121.7	32.6	**6**	170.0	45.6	**6**	218.3	58.5	**6**	266.6	71.4
7	26.1	7.0	**7**	74.4	19.9	**7**	122.7	32.9	**7**	171.0	45.8	**7**	219.3	58.8	**7**	267.6	71.7
8	27.0	7.2	**8**	75.3	20.2	**8**	123.6	33.1	**8**	171.9	46.1	**8**	220.2	59.0	**8**	268.5	72.0
9	28.0	7.5	**9**	76.3	20.4	**9**	124.6	33.4	**9**	172.9	46.3	**9**	221.2	59.3	**9**	269.5	72.2
30	29.0	7.8	**80**	77.3	20.7	**130**	125.6	33.6	**180**	173.9	46.6	**230**	222.2	59.5	**280**	270.5	72.5
1	29.9	8.0	**1**	78.2	21.0	**1**	126.5	33.9	**1**	174.8	46.8	**1**	223.1	59.8	**1**	271.4	72.7
2	30.9	8.3	**2**	79.2	21.2	**2**	127.5	34.2	**2**	175.8	47.1	**2**	224.1	60.0	**2**	272.4	73.0
3	31.9	8.5	**3**	80.2	21.5	**3**	128.5	34.4	**3**	176.8	47.4	**3**	225.1	60.3	**3**	273.4	73.2
4	32.8	8.8	**4**	81.1	21.7	**4**	129.4	34.7	**4**	177.7	47.6	**4**	226.0	60.6	**4**	274.3	73.5
5	33.8	9.1	**5**	82.1	22.0	**5**	130.4	34.9	**5**	178.7	47.9	**5**	227.0	60.8	**5**	275.3	73.8
6	34.8	9.3	**6**	83.1	22.3	**6**	131.4	35.2	**6**	179.7	48.1	**6**	228.0	61.1	**6**	276.3	74.0
7	35.7	9.6	**7**	84.0	22.5	**7**	132.3	35.5	**7**	180.6	48.4	**7**	228.9	61.3	**7**	277.2	74.3
8	36.7	9.8	**8**	85.0	22.8	**8**	133.3	35.7	**8**	181.6	48.7	**8**	229.9	61.6	**8**	278.2	74.5
9	37.7	10.1	**9**	86.0	23.0	**9**	134.3	36.0	**9**	182.6	48.9	**9**	230.9	61.9	**9**	279.2	74.8
40	38.6	10.4	**90**	86.9	23.3	**140**	135.2	36.2	**190**	183.5	49.2	**240**	231.8	62.1	**290**	280.1	75.1
1	39.6	10.6	**1**	87.9	23.6	**1**	136.2	36.5	**1**	184.5	49.4	**1**	232.8	62.4	**1**	281.1	75.3
2	40.6	10.9	**2**	88.9	23.8	**2**	137.2	36.8	**2**	185.5	49.7	**2**	233.8	62.6	**2**	282.1	75.6
3	41.5	11.1	**3**	89.8	24.1	**3**	138.1	37.0	**3**	186.4	50.0	**3**	234.7	62.9	**3**	283.0	75.8
4	42.5	11.4	**4**	90.8	24.3	**4**	139.1	37.3	**4**	187.4	50.2	**4**	235.7	63.2	**4**	284.0	76.1
5	43.5	11.6	**5**	91.8	24.6	**5**	140.1	37.5	**5**	188.4	50.5	**5**	236.7	63.4	**5**	284.9	76.4
6	44.4	11.9	**6**	92.7	24.8	**6**	141.0	37.8	**6**	189.3	50.7	**6**	237.6	63.7	**6**	285.9	76.6
7	45.4	12.2	**7**	93.7	25.1	**7**	142.0	38.0	**7**	190.3	51.0	**7**	238.6	63.9	**7**	286.9	76.9
8	46.4	12.4	**8**	94.7	25.4	**8**	143.0	38.3	**8**	191.3	51.2	**8**	239.5	64.2	**8**	287.8	77.1
9	47.3	12.7	**9**	95.6	25.6	**9**	143.9	38.6	**9**	192.2	51.5	**9**	240.5	64.4	**9**	288.8	77.4
D	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ
ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap

ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap	
D	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap
300	289.8	77.6	**350**	338.1	90.6	**400**	386.4	103.5	**450**	434.7	116.5	**500**	483.0	129.4	**550**	531.3	142.4
1	290.7	77.9	**1**	339.0	90.8	**1**	387.3	103.8	**1**	435.6	116.7	**1**	483.9	129.7	**1**	532.2	142.6
2	291.7	78.2	**2**	340.0	91.1	**2**	388.3	104.0	**2**	436.6	117.0	**2**	484.9	129.9	**2**	533.2	142.9
3	292.7	78.4	**3**	341.0	91.4	**3**	389.3	104.3	**3**	437.6	117.2	**3**	485.9	130.2	**3**	534.2	143.1
4	293.6	78.7	**4**	341.9	91.6	**4**	390.2	104.6	**4**	438.5	117.5	**4**	486.8	130.4	**4**	535.1	143.4
5	294.6	78.9	**5**	342.9	91.9	**5**	391.2	104.8	**5**	439.5	117.8	**5**	487.8	130.7	**5**	536.1	143.6
6	295.6	79.2	**6**	343.9	92.1	**6**	392.2	105.1	**6**	440.5	118.0	**6**	488.8	131.0	**6**	537.1	143.9
7	296.5	79.5	**7**	344.8	92.4	**7**	393.1	105.3	**7**	441.4	118.3	**7**	489.7	131.2	**7**	538.0	144.2
8	297.5	79.7	**8**	345.8	92.7	**8**	394.1	105.6	**8**	442.4	118.5	**8**	490.7	131.5	**8**	539.0	144.4
9	298.5	80.0	**9**	346.8	92.9	**9**	395.1	105.9	**9**	443.4	118.8	**9**	491.7	131.7	**9**	540.0	144.7
310	299.4	80.2	**360**	347.7	93.2	**410**	396.0	106.1	**460**	444.3	119.1	**510**	492.6	132.0	**560**	540.9	144.9
1	300.4	80.5	**1**	348.7	93.4	**1**	397.0	106.4	**1**	445.3	119.3	**1**	493.6	132.3	**1**	541.9	145.2
2	301.4	80.8	**2**	349.7	93.7	**2**	398.0	106.6	**2**	446.3	119.6	**2**	494.6	132.5	**2**	542.9	145.5
3	302.3	81.0	**3**	350.6	94.0	**3**	398.9	106.9	**3**	447.2	119.8	**3**	495.5	132.8	**3**	543.8	145.7
4	303.3	81.3	**4**	351.6	94.2	**4**	399.9	107.2	**4**	448.2	120.1	**4**	496.5	133.0	**4**	544.8	146.0
5	304.3	81.5	**5**	352.6	94.5	**5**	400.9	107.4	**5**	449.2	120.4	**5**	497.5	133.3	**5**	545.7	146.2
6	305.2	81.8	**6**	353.5	94.7	**6**	401.8	107.7	**6**	450.1	120.6	**6**	498.4	133.6	**6**	546.7	146.5
7	306.2	82.0	**7**	354.5	95.0	**7**	402.8	107.9	**7**	451.1	120.9	**7**	499.4	133.8	**7**	547.7	146.8
8	307.2	82.3	**8**	355.5	95.2	**8**	403.8	108.2	**8**	452.1	121.1	**8**	500.3	134.1	**8**	548.6	147.0
9	308.1	82.6	**9**	356.4	95.5	**9**	404.7	108.4	**9**	453.0	121.4	**9**	501.3	134.3	**9**	549.6	147.3
320	309.1	82.8	**370**	357.4	95.8	**420**	405.7	108.7	**470**	454.0	121.6	**520**	502.3	134.6	**570**	550.6	147.5
1	310.1	83.1	**1**	358.4	96.0	**1**	406.7	109.0	**1**	455.0	121.9	**1**	503.2	134.8	**1**	551.5	147.8
2	311.0	83.3	**2**	359.3	96.3	**2**	407.6	109.2	**2**	455.9	122.2	**2**	504.2	135.1	**2**	552.5	148.0
3	312.0	83.6	**3**	360.3	96.5	**3**	408.6	109.5	**3**	456.9	122.4	**3**	505.2	135.4	**3**	553.5	148.3
4	313.0	83.9	**4**	361.3	96.8	**4**	409.6	109.7	**4**	457.8	122.7	**4**	506.1	135.6	**4**	554.4	148.6
5	313.9	84.1	**5**	362.2	97.1	**5**	410.5	110.0	**5**	458.8	122.9	**5**	507.1	135.9	**5**	555.4	148.8
6	314.9	84.4	**6**	363.2	97.3	**6**	411.5	110.3	**6**	459.8	123.2	**6**	508.1	136.1	**6**	556.4	149.1
7	315.9	84.6	**7**	364.2	97.6	**7**	412.5	110.5	**7**	460.7	123.5	**7**	509.0	136.4	**7**	557.3	149.3
8	316.8	84.9	**8**	365.1	97.8	**8**	413.4	110.8	**8**	461.7	123.7	**8**	510.0	136.7	**8**	558.3	149.6
9	317.8	85.2	**9**	366.1	98.1	**9**	414.4	111.0	**9**	462.7	124.0	**9**	511.0	136.9	**9**	559.3	149.9
330	318.8	85.4	**380**	367.1	98.4	**430**	415.3	111.3	**480**	463.6	124.2	**530**	511.9	137.2	**580**	560.2	150.1
1	319.7	85.7	**1**	368.0	98.6	**1**	416.3	111.6	**1**	464.6	124.5	**1**	512.9	137.4	**1**	561.2	150.4
2	320.7	85.9	**2**	369.0	98.9	**2**	417.3	111.8	**2**	465.6	124.8	**2**	513.9	137.7	**2**	562.2	150.6
3	321.7	86.2	**3**	369.9	99.1	**3**	418.2	112.1	**3**	466.5	125.0	**3**	514.8	138.0	**3**	563.1	150.9
4	322.6	86.4	**4**	370.9	99.4	**4**	419.2	112.3	**4**	467.5	125.3	**4**	515.8	138.2	**4**	564.1	151.2
5	323.6	86.7	**5**	371.9	99.6	**5**	420.2	112.6	**5**	468.5	125.5	**5**	516.8	138.5	**5**	565.1	151.4
6	324.6	87.0	**6**	372.8	99.9	**6**	421.1	112.8	**6**	469.4	125.8	**6**	517.7	138.7	**6**	566.0	151.7
7	325.5	87.2	**7**	373.8	100.2	**7**	422.1	113.1	**7**	470.4	126.0	**7**	518.7	139.0	**7**	567.0	151.9
8	326.5	87.5	**8**	374.8	100.4	**8**	423.1	113.4	**8**	471.4	126.3	**8**	519.7	139.2	**8**	568.0	152.2
9	327.4	87.7	**9**	375.7	100.7	**9**	424.0	113.6	**9**	472.3	126.6	**9**	520.6	139.5	**9**	568.9	152.4
340	328.4	88.0	**390**	376.7	100.9	**440**	425.0	113.9	**490**	473.3	126.8	**540**	521.6	139.8	**590**	569.9	152.7
1	329.4	88.3	**1**	377.7	101.2	**1**	426.0	114.1	**1**	474.3	127.1	**1**	522.6	140.0	**1**	570.9	153.0
2	330.3	88.5	**2**	378.6	101.5	**2**	426.9	114.4	**2**	475.2	127.3	**2**	523.5	140.3	**2**	571.8	153.2
3	331.3	88.8	**3**	379.6	101.7	**3**	427.9	114.7	**3**	476.2	127.6	**3**	524.5	140.5	**3**	572.8	153.5
4	332.3	89.0	**4**	380.6	102.0	**4**	428.9	114.9	**4**	477.2	127.9	**4**	525.5	140.8	**4**	573.8	153.7
5	333.2	89.3	**5**	381.5	102.2	**5**	429.8	115.2	**5**	478.1	128.1	**5**	526.4	141.1	**5**	574.7	154.0
6	334.2	89.6	**6**	382.5	102.5	**6**	430.8	115.4	**6**	479.1	128.4	**6**	527.4	141.3	**6**	575.7	154.3
7	335.2	89.8	**7**	383.5	102.8	**7**	431.8	115.7	**7**	480.1	128.6	**7**	528.4	141.6	**7**	576.7	154.5
8	336.1	90.1	**8**	384.4	103.0	**8**	432.7	116.0	**8**	481.0	128.9	**8**	529.3	141.8	**8**	577.6	154.8
9	337.1	90.3	**9**	385.4	103.3	**9**	433.7	116.2	**9**	482.0	129.2	**9**	530.3	142.1	**9**	578.6	155.0
D	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ
ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap

ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap	
D	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap
0	0.0	0.0	**50**	48.1	13.8	**100**	96.1	27.6	**150**	144.2	41.3	**200**	192.3	55.1	**250**	240.3	68.9
1	1.0	0.3	**1**	49.0	14.1	**1**	97.1	27.8	**1**	145.2	41.6	**1**	193.2	55.4	**1**	241.3	69.2
2	1.9	0.6	**2**	50.0	14.3	**2**	98.0	28.1	**2**	146.1	41.9	**2**	194.2	55.7	**2**	242.2	69.5
3	2.9	0.8	**3**	50.9	14.6	**3**	99.0	28.4	**3**	147.1	42.2	**3**	195.1	56.0	**3**	243.2	69.7
4	3.8	1.1	**4**	51.9	14.9	**4**	100.0	28.7	**4**	148.0	42.4	**4**	196.1	56.2	**4**	244.2	70.0
5	4.8	1.4	**5**	52.9	15.2	**5**	100.9	28.9	**5**	149.0	42.7	**5**	197.1	56.5	**5**	245.1	70.3
6	5.8	1.7	**6**	53.8	15.4	**6**	101.9	29.2	**6**	150.0	43.0	**6**	198.0	56.8	**6**	246.1	70.6
7	6.7	1.9	**7**	54.8	15.7	**7**	102.9	29.5	**7**	150.9	43.3	**7**	199.0	57.1	**7**	247.0	70.8
8	7.7	2.2	**8**	55.8	16.0	**8**	103.8	29.8	**8**	151.9	43.6	**8**	199.9	57.3	**8**	248.0	71.1
9	8.7	2.5	**9**	56.7	16.3	**9**	104.8	30.0	**9**	152.8	43.8	**9**	200.9	57.6	**9**	249.0	71.4
10	9.6	2.8	**60**	57.7	16.5	**110**	105.7	30.3	**160**	153.8	44.1	**210**	201.9	57.9	**260**	249.9	71.7
1	10.6	3.0	**1**	58.6	16.8	**1**	106.7	30.6	**1**	154.8	44.4	**1**	202.8	58.2	**1**	250.9	71.9
2	11.5	3.3	**2**	59.6	17.1	**2**	107.7	30.9	**2**	155.7	44.7	**2**	203.8	58.4	**2**	251.9	72.2
3	12.5	3.6	**3**	60.6	17.4	**3**	108.6	31.1	**3**	156.7	44.9	**3**	204.7	58.7	**3**	252.8	72.5
4	13.5	3.9	**4**	61.5	17.6	**4**	109.6	31.4	**4**	157.6	45.2	**4**	205.7	59.0	**4**	253.8	72.8
5	14.4	4.1	**5**	62.5	17.9	**5**	110.5	31.7	**5**	158.6	45.5	**5**	206.7	59.3	**5**	254.7	73.0
6	15.4	4.4	**6**	63.4	18.2	**6**	111.5	32.0	**6**	159.6	45.8	**6**	207.6	59.5	**6**	255.7	73.3
7	16.3	4.7	**7**	64.4	18.5	**7**	112.5	32.2	**7**	160.5	46.0	**7**	208.6	59.8	**7**	256.7	73.6
8	17.3	5.0	**8**	65.4	18.7	**8**	113.4	32.5	**8**	161.5	46.3	**8**	209.6	60.1	**8**	257.6	73.9
9	18.3	5.2	**9**	66.3	19.0	**9**	114.4	32.8	**9**	162.5	46.6	**9**	210.5	60.4	**9**	258.6	74.1
20	19.2	5.5	**70**	67.3	19.3	**120**	115.4	33.1	**170**	163.4	46.9	**220**	211.5	60.6	**270**	259.5	74.4
1	20.2	5.8	**1**	68.2	19.6	**1**	116.3	33.4	**1**	164.4	47.1	**1**	212.4	60.9	**1**	260.5	74.7
2	21.1	6.1	**2**	69.2	19.8	**2**	117.3	33.6	**2**	165.3	47.4	**2**	213.4	61.2	**2**	261.5	75.0
3	22.1	6.3	**3**	70.2	20.1	**3**	118.2	33.9	**3**	166.3	47.7	**3**	214.4	61.5	**3**	262.4	75.2
4	23.1	6.6	**4**	71.1	20.4	**4**	119.2	34.2	**4**	167.3	48.0	**4**	215.3	61.7	**4**	263.4	75.5
5	24.0	6.9	**5**	72.1	20.7	**5**	120.2	34.5	**5**	168.2	48.2	**5**	216.3	62.0	**5**	264.3	75.8
6	25.0	7.2	**6**	73.1	20.9	**6**	121.1	34.7	**6**	169.2	48.5	**6**	217.2	62.3	**6**	265.3	76.1
7	26.0	7.4	**7**	74.0	21.2	**7**	122.1	35.0	**7**	170.1	48.8	**7**	218.2	62.6	**7**	266.3	76.4
8	26.9	7.7	**8**	75.0	21.5	**8**	123.0	35.3	**8**	171.1	49.1	**8**	219.2	62.8	**8**	267.2	76.6
9	27.9	8.0	**9**	75.9	21.8	**9**	124.0	35.6	**9**	172.1	49.3	**9**	220.1	63.1	**9**	268.2	76.9
30	28.8	8.3	**80**	76.9	22.1	**130**	125.0	35.8	**180**	173.0	49.6	**230**	221.1	63.4	**280**	269.2	77.2
1	29.8	8.5	**1**	77.9	22.3	**1**	125.9	36.1	**1**	174.0	49.9	**1**	222.1	63.7	**1**	270.1	77.5
2	30.8	8.8	**2**	78.8	22.6	**2**	126.9	36.4	**2**	174.9	50.2	**2**	223.0	63.9	**2**	271.1	77.7
3	31.7	9.1	**3**	79.8	22.9	**3**	127.8	36.7	**3**	175.9	50.4	**3**	224.0	64.2	**3**	272.0	78.0
4	32.7	9.4	**4**	80.7	23.2	**4**	128.8	36.9	**4**	176.9	50.7	**4**	224.9	64.5	**4**	273.0	78.3
5	33.6	9.6	**5**	81.7	23.4	**5**	129.8	37.2	**5**	177.8	51.0	**5**	225.9	64.8	**5**	274.0	78.6
6	34.6	9.9	**6**	82.7	23.7	**6**	130.7	37.5	**6**	178.8	51.3	**6**	226.9	65.1	**6**	274.9	78.8
7	35.6	10.2	**7**	83.6	24.0	**7**	131.7	37.8	**7**	179.8	51.5	**7**	227.8	65.3	**7**	275.9	79.1
8	36.5	10.5	**8**	84.6	24.3	**8**	132.7	38.0	**8**	180.7	51.8	**8**	228.8	65.6	**8**	276.8	79.4
9	37.5	10.7	**9**	85.6	24.5	**9**	133.6	38.3	**9**	181.7	52.1	**9**	229.7	65.9	**9**	277.8	79.7
40	38.5	11.0	**90**	86.5	24.8	**140**	134.6	38.6	**190**	182.6	52.4	**240**	230.7	66.2	**290**	278.8	79.9
1	39.4	11.3	**1**	87.5	25.1	**1**	135.5	38.9	**1**	183.6	52.6	**1**	231.7	66.4	**1**	279.7	80.2
2	40.4	11.6	**2**	88.4	25.4	**2**	136.5	39.1	**2**	184.6	52.9	**2**	232.6	66.7	**2**	280.7	80.5
3	41.3	11.9	**3**	89.4	25.6	**3**	137.5	39.4	**3**	185.5	53.2	**3**	233.6	67.0	**3**	281.6	80.8
4	42.3	12.1	**4**	90.4	25.9	**4**	138.4	39.7	**4**	186.5	53.5	**4**	234.5	67.3	**4**	282.6	81.0
5	43.3	12.4	**5**	91.3	26.2	**5**	139.4	40.0	**5**	187.4	53.7	**5**	235.5	67.5	**5**	283.6	81.3
6	44.2	12.7	**6**	92.3	26.5	**6**	140.3	40.2	**6**	188.4	54.0	**6**	236.5	67.8	**6**	284.5	81.6
7	45.2	13.0	**7**	93.2	26.7	**7**	141.3	40.5	**7**	189.4	54.3	**7**	237.4	68.1	**7**	285.5	81.9
8	46.1	13.2	**8**	94.2	27.0	**8**	142.3	40.8	**8**	190.3	54.6	**8**	238.4	68.4	**8**	286.5	82.1
9	47.1	13.5	**9**	95.2	27.3	**9**	143.2	41.1	**9**	191.3	54.9	**9**	239.4	68.6	**9**	287.4	82.4
D	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ
ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap

ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap	
D	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap
300	288.4	82.7	**350**	336.4	96.5	**400**	384.5	110.3	**450**	432.6	124.0	**500**	480.6	137.8	**550**	528.7	151.6
1	289.3	83.0	**1**	337.4	96.7	**1**	385.5	110.5	**1**	433.5	124.3	**1**	481.6	138.1	**1**	529.7	151.9
2	290.3	83.2	**2**	338.4	97.0	**2**	386.4	110.8	**2**	434.5	124.6	**2**	482.6	138.4	**2**	530.6	152.2
3	291.3	83.5	**3**	339.3	97.3	**3**	387.4	111.1	**3**	435.5	124.9	**3**	483.5	138.6	**3**	531.6	152.4
4	292.2	83.8	**4**	340.3	97.6	**4**	388.3	111.4	**4**	436.4	125.1	**4**	484.5	138.9	**4**	532.5	152.7
5	293.2	84.1	**5**	341.2	97.9	**5**	389.3	111.6	**5**	437.4	125.4	**5**	485.4	139.2	**5**	533.5	153.0
6	294.1	84.3	**6**	342.2	98.1	**6**	390.3	111.9	**6**	438.3	125.7	**6**	486.4	139.5	**6**	534.5	153.3
7	295.1	84.6	**7**	343.2	98.4	**7**	391.2	112.2	**7**	439.3	126.0	**7**	487.4	139.7	**7**	535.4	153.5
8	296.1	84.9	**8**	344.1	98.7	**8**	392.2	112.5	**8**	440.3	126.2	**8**	488.3	140.0	**8**	536.4	153.8
9	297.0	85.2	**9**	345.1	99.0	**9**	393.2	112.7	**9**	441.2	126.5	**9**	489.3	140.3	**9**	537.3	154.1
310	298.0	85.4	**360**	346.1	99.2	**410**	394.1	113.0	**460**	442.2	126.8	**510**	490.2	140.6	**560**	538.3	154.4
1	299.0	85.7	**1**	347.0	99.5	**1**	395.1	113.3	**1**	443.1	127.1	**1**	491.2	140.9	**1**	539.3	154.6
2	299.9	86.0	**2**	348.0	99.8	**2**	396.0	113.6	**2**	444.1	127.3	**2**	492.2	141.1	**2**	540.2	154.9
3	300.9	86.3	**3**	348.9	100.1	**3**	397.0	113.8	**3**	445.1	127.6	**3**	493.1	141.4	**3**	541.2	155.2
4	301.8	86.6	**4**	349.9	100.3	**4**	398.0	114.1	**4**	446.0	127.9	**4**	494.1	141.7	**4**	542.2	155.5
5	302.8	86.8	**5**	350.9	100.6	**5**	398.9	114.4	**5**	447.0	128.2	**5**	495.0	142.0	**5**	543.1	155.7
6	303.8	87.1	**6**	351.8	100.9	**6**	399.9	114.7	**6**	447.9	128.4	**6**	496.0	142.2	**6**	544.1	156.0
7	304.7	87.4	**7**	352.8	101.2	**7**	400.8	114.9	**7**	448.9	128.7	**7**	497.0	142.5	**7**	545.0	156.3
8	305.7	87.7	**8**	353.7	101.4	**8**	401.8	115.2	**8**	449.9	129.0	**8**	497.9	142.8	**8**	546.0	156.6
9	306.6	87.9	**9**	354.7	101.7	**9**	402.8	115.5	**9**	450.8	129.3	**9**	498.9	143.1	**9**	547.0	156.8
320	307.6	88.2	**370**	355.7	102.0	**420**	403.7	115.8	**470**	451.8	129.5	**520**	499.9	143.3	**570**	547.9	157.1
1	308.6	88.5	**1**	356.6	102.3	**1**	404.7	116.0	**1**	452.8	129.8	**1**	500.8	143.6	**1**	548.9	157.4
2	309.5	88.8	**2**	357.6	102.5	**2**	405.7	116.3	**2**	453.7	130.1	**2**	501.8	143.9	**2**	549.8	157.7
3	310.5	89.0	**3**	358.6	102.8	**3**	406.6	116.6	**3**	454.7	130.4	**3**	502.7	144.2	**3**	550.8	157.9
4	311.4	89.3	**4**	359.5	103.1	**4**	407.6	116.9	**4**	455.6	130.7	**4**	503.7	144.4	**4**	551.8	158.2
5	312.4	89.6	**5**	360.5	103.4	**5**	408.5	117.1	**5**	456.6	130.9	**5**	504.7	144.7	**5**	552.7	158.5
6	313.4	89.9	**6**	361.4	103.6	**6**	409.5	117.4	**6**	457.6	131.2	**6**	505.6	145.0	**6**	553.7	158.8
7	314.3	90.1	**7**	362.4	103.9	**7**	410.5	117.7	**7**	458.5	131.5	**7**	506.6	145.3	**7**	554.6	159.0
8	315.3	90.4	**8**	363.4	104.2	**8**	411.4	118.0	**8**	459.5	131.8	**8**	507.5	145.5	**8**	555.6	159.3
9	316.3	90.7	**9**	364.3	104.5	**9**	412.4	118.2	**9**	460.4	132.0	**9**	508.5	145.8	**9**	556.6	159.6
330	317.2	91.0	**380**	365.3	104.7	**430**	413.3	118.5	**480**	461.4	132.3	**530**	509.5	146.1	**580**	557.5	159.9
1	318.2	91.2	**1**	366.2	105.0	**1**	414.3	118.8	**1**	462.4	132.6	**1**	510.4	146.4	**1**	558.5	160.1
2	319.1	91.5	**2**	367.2	105.3	**2**	415.3	119.1	**2**	463.3	132.9	**2**	511.4	146.6	**2**	559.5	160.4
3	320.1	91.8	**3**	368.2	105.6	**3**	416.2	119.4	**3**	464.3	133.1	**3**	512.4	146.9	**3**	560.4	160.7
4	321.1	92.1	**4**	369.1	105.8	**4**	417.2	119.6	**4**	465.3	133.4	**4**	513.3	147.2	**4**	561.4	161.0
5	322.0	92.3	**5**	370.1	106.1	**5**	418.1	119.9	**5**	466.2	133.7	**5**	514.3	147.5	**5**	562.3	161.2
6	323.0	92.6	**6**	371.0	106.4	**6**	419.1	120.2	**6**	467.2	134.0	**6**	515.2	147.7	**6**	563.3	161.5
7	323.9	92.9	**7**	372.0	106.7	**7**	420.1	120.5	**7**	468.1	134.2	**7**	516.2	148.0	**7**	564.3	161.8
8	324.9	93.2	**8**	373.0	106.9	**8**	421.0	120.7	**8**	469.1	134.5	**8**	517.2	148.3	**8**	565.2	162.1
9	325.9	93.4	**9**	373.9	107.2	**9**	422.0	121.0	**9**	470.1	134.8	**9**	518.1	148.6	**9**	566.2	162.4
340	326.8	93.7	**390**	374.9	107.5	**440**	423.0	121.3	**490**	471.0	135.1	**540**	519.1	148.8	**590**	567.1	162.6
1	327.8	94.0	**1**	375.9	107.8	**1**	423.9	121.6	**1**	472.0	135.3	**1**	520.0	149.1	**1**	568.1	162.9
2	328.8	94.3	**2**	376.8	108.0	**2**	424.9	121.8	**2**	472.9	135.6	**2**	521.0	149.4	**2**	569.1	163.2
3	329.7	94.5	**3**	377.8	108.3	**3**	425.8	122.1	**3**	473.9	135.9	**3**	522.0	149.7	**3**	570.0	163.5
4	330.7	94.8	**4**	378.7	108.6	**4**	426.8	122.4	**4**	474.9	136.2	**4**	522.9	149.9	**4**	571.0	163.7
5	331.6	95.1	**5**	379.7	108.9	**5**	427.8	122.7	**5**	475.8	136.4	**5**	523.9	150.2	**5**	572.0	164.0
6	332.6	95.4	**6**	380.7	109.2	**6**	428.7	122.9	**6**	476.8	136.7	**6**	524.8	150.5	**6**	572.9	164.3
7	333.6	95.6	**7**	381.6	109.4	**7**	429.7	123.2	**7**	477.7	137.0	**7**	525.8	150.8	**7**	573.9	164.6
8	334.5	95.9	**8**	382.6	109.7	**8**	430.6	123.5	**8**	478.7	137.3	**8**	526.8	151.0	**8**	574.8	164.8
9	335.5	96.2	**9**	383.5	110.0	**9**	431.6	123.8	**9**	479.7	137.5	**9**	527.7	151.3	**9**	575.8	165.1
D	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ
ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap

ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap	
D	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap
0	0.0	0.0	**50**	47.8	14.6	**100**	95.6	29.2	**150**	143.4	43.9	**200**	191.3	58.5	**250**	239.1	73.1
1	1.0	0.3	**1**	48.8	14.9	**1**	96.6	29.5	**1**	144.4	44.1	**1**	192.2	58.8	**1**	240.0	73.4
2	1.9	0.6	**2**	49.7	15.2	**2**	97.5	29.8	**2**	145.4	44.4	**2**	193.2	59.1	**2**	241.0	73.7
3	2.9	0.9	**3**	50.7	15.5	**3**	98.5	30.1	**3**	146.3	44.7	**3**	194.1	59.4	**3**	241.9	74.0
4	3.8	1.2	**4**	51.6	15.8	**4**	99.5	30.4	**4**	147.3	45.0	**4**	195.1	59.6	**4**	242.9	74.3
5	4.8	1.5	**5**	52.6	16.1	**5**	100.4	30.7	**5**	148.2	45.3	**5**	196.0	59.9	**5**	243.9	74.6
6	5.7	1.8	**6**	53.6	16.4	**6**	101.4	31.0	**6**	149.2	45.6	**6**	197.0	60.2	**6**	244.8	74.8
7	6.7	2.0	**7**	54.5	16.7	**7**	102.3	31.3	**7**	150.1	45.9	**7**	198.0	60.5	**7**	245.8	75.1
8	7.7	2.3	**8**	55.5	17.0	**8**	103.3	31.6	**8**	151.1	46.2	**8**	198.9	60.8	**8**	246.7	75.4
9	8.6	2.6	**9**	56.4	17.2	**9**	104.2	31.9	**9**	152.1	46.5	**9**	199.9	61.1	**9**	247.7	75.7
10	9.6	2.9	**60**	57.4	17.5	**110**	105.2	32.2	**160**	153.0	46.8	**210**	200.8	61.4	**260**	248.6	76.0
1	10.5	3.2	**1**	58.3	17.8	**1**	106.1	32.5	**1**	154.0	47.1	**1**	201.8	61.7	**1**	249.6	76.3
2	11.5	3.5	**2**	59.3	18.1	**2**	107.1	32.7	**2**	154.9	47.4	**2**	202.7	62.0	**2**	250.6	76.6
3	12.4	3.8	**3**	60.2	18.4	**3**	108.1	33.0	**3**	155.9	47.7	**3**	203.7	62.3	**3**	251.5	76.9
4	13.4	4.1	**4**	61.2	18.7	**4**	109.0	33.3	**4**	156.8	47.9	**4**	204.6	62.6	**4**	252.5	77.2
5	14.3	4.4	**5**	62.2	19.0	**5**	110.0	33.6	**5**	157.8	48.2	**5**	205.6	62.9	**5**	253.4	77.5
6	15.3	4.7	**6**	63.1	19.3	**6**	110.9	33.9	**6**	158.7	48.5	**6**	206.6	63.2	**6**	254.4	77.8
7	16.3	5.0	**7**	64.1	19.6	**7**	111.9	34.2	**7**	159.7	48.8	**7**	207.5	63.4	**7**	255.3	78.1
8	17.2	5.3	**8**	65.0	19.9	**8**	112.8	34.5	**8**	160.7	49.1	**8**	208.5	63.7	**8**	256.3	78.4
9	18.2	5.6	**9**	66.0	20.2	**9**	113.8	34.8	**9**	161.6	49.4	**9**	209.4	64.0	**9**	257.2	78.6
20	19.1	5.8	**70**	66.9	20.5	**120**	114.8	35.1	**170**	162.6	49.7	**220**	210.4	64.3	**270**	258.2	78.9
1	20.1	6.1	**1**	67.9	20.8	**1**	115.7	35.4	**1**	163.5	50.0	**1**	211.3	64.6	**1**	259.2	79.2
2	21.0	6.4	**2**	68.9	21.1	**2**	116.7	35.7	**2**	164.5	50.3	**2**	212.3	64.9	**2**	260.1	79.5
3	22.0	6.7	**3**	69.8	21.3	**3**	117.6	36.0	**3**	165.4	50.6	**3**	213.3	65.2	**3**	261.1	79.8
4	23.0	7.0	**4**	70.8	21.6	**4**	118.6	36.3	**4**	166.4	50.9	**4**	214.2	65.5	**4**	262.0	80.1
5	23.9	7.3	**5**	71.7	21.9	**5**	119.5	36.5	**5**	167.4	51.2	**5**	215.2	65.8	**5**	263.0	80.4
6	24.9	7.6	**6**	72.7	22.2	**6**	120.5	36.8	**6**	168.3	51.5	**6**	216.1	66.1	**6**	263.9	80.7
7	25.8	7.9	**7**	73.6	22.5	**7**	121.5	37.1	**7**	169.3	51.7	**7**	217.1	66.4	**7**	264.9	81.0
8	26.8	8.2	**8**	74.6	22.8	**8**	122.4	37.4	**8**	170.2	52.0	**8**	218.0	66.7	**8**	265.9	81.3
9	27.7	8.5	**9**	75.5	23.1	**9**	123.4	37.7	**9**	171.2	52.3	**9**	219.0	67.0	**9**	266.8	81.6
30	28.7	8.8	**80**	76.5	23.4	**130**	124.3	38.0	**180**	172.1	52.6	**230**	220.0	67.2	**280**	267.8	81.9
1	29.6	9.1	**1**	77.5	23.7	**1**	125.3	38.3	**1**	173.1	52.9	**1**	220.9	67.5	**1**	268.7	82.2
2	30.6	9.4	**2**	78.4	24.0	**2**	126.2	38.6	**2**	174.0	53.2	**2**	221.9	67.8	**2**	269.7	82.4
3	31.6	9.6	**3**	79.4	24.3	**3**	127.2	38.9	**3**	175.0	53.5	**3**	222.8	68.1	**3**	270.6	82.7
4	32.5	9.9	**4**	80.3	24.6	**4**	128.1	39.2	**4**	176.0	53.8	**4**	223.8	68.4	**4**	271.6	83.0
5	33.5	10.2	**5**	81.3	24.9	**5**	129.1	39.5	**5**	176.9	54.1	**5**	224.7	68.7	**5**	272.5	83.3
6	34.4	10.5	**6**	82.2	25.1	**6**	130.1	39.8	**6**	177.9	54.4	**6**	225.7	69.0	**6**	273.5	83.6
7	35.4	10.8	**7**	83.2	25.4	**7**	131.0	40.1	**7**	178.8	54.7	**7**	226.6	69.3	**7**	274.5	83.9
8	36.3	11.1	**8**	84.2	25.7	**8**	132.0	40.3	**8**	179.8	55.0	**8**	227.6	69.6	**8**	275.4	84.2
9	37.3	11.4	**9**	85.1	26.0	**9**	132.9	40.6	**9**	180.7	55.3	**9**	228.6	69.9	**9**	276.4	84.5
40	38.3	11.7	**90**	86.1	26.3	**140**	133.9	40.9	**190**	181.7	55.6	**240**	229.5	70.2	**290**	277.3	84.8
1	39.2	12.0	**1**	87.0	26.6	**1**	134.8	41.2	**1**	182.7	55.8	**1**	230.5	70.5	**1**	278.3	85.1
2	40.2	12.3	**2**	88.0	26.9	**2**	135.8	41.5	**2**	183.6	56.1	**2**	231.4	70.8	**2**	279.2	85.4
3	41.1	12.6	**3**	88.9	27.2	**3**	136.8	41.8	**3**	184.6	56.4	**3**	232.4	71.0	**3**	280.2	85.7
4	42.1	12.9	**4**	89.9	27.5	**4**	137.7	42.1	**4**	185.5	56.7	**4**	233.3	71.3	**4**	281.2	86.0
5	43.0	13.2	**5**	90.8	27.8	**5**	138.7	42.4	**5**	186.5	57.0	**5**	234.3	71.6	**5**	282.1	86.2
6	44.0	13.4	**6**	91.8	28.1	**6**	139.6	42.7	**6**	187.4	57.3	**6**	235.3	71.9	**6**	283.1	86.5
7	44.9	13.7	**7**	92.8	28.4	**7**	140.6	43.0	**7**	188.4	57.6	**7**	236.2	72.2	**7**	284.0	86.8
8	45.9	14.0	**8**	93.7	28.7	**8**	141.5	43.3	**8**	189.3	57.9	**8**	237.2	72.5	**8**	285.0	87.1
9	46.9	14.3	**9**	94.7	28.9	**9**	142.5	43.6	**9**	190.3	58.2	**9**	238.1	72.8	**9**	285.9	87.4
D	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ
ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap

R

359 343° 315
181 197 225

TABELA 1

TÁBUAS DE CARTEAÇÃO

R ou φm

001 017 045
179 163 135

ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap	
D	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap
300	286.9	87.7	**350**	334.7	102.3	**400**	382.5	116.9	**450**	430.3	131.6	**500**	478.2	146.2	**550**	526.0	160.8
1	287.8	88.0	**1**	335.7	102.6	**1**	383.5	117.2	**1**	431.3	131.9	**1**	479.1	146.5	**1**	526.9	161.1
2	288.8	88.3	**2**	336.6	102.9	**2**	384.4	117.5	**2**	432.2	132.2	**2**	480.1	146.8	**2**	527.9	161.4
3	289.8	88.6	**3**	337.6	103.2	**3**	385.4	117.8	**3**	433.2	132.4	**3**	481.0	147.1	**3**	528.8	161.7
4	290.7	88.9	**4**	338.5	103.5	**4**	386.3	118.1	**4**	434.2	132.7	**4**	482.0	147.4	**4**	529.8	162.0
5	291.7	89.2	**5**	339.5	103.8	**5**	387.3	118.4	**5**	435.1	133.0	**5**	482.9	147.6	**5**	530.7	162.3
6	292.6	89.5	**6**	340.4	104.1	**6**	388.3	118.7	**6**	436.1	133.3	**6**	483.9	147.9	**6**	531.7	162.6
7	293.6	89.8	**7**	341.4	104.4	**7**	389.2	119.0	**7**	437.0	133.6	**7**	484.8	148.2	**7**	532.7	162.9
8	294.5	90.1	**8**	342.4	104.7	**8**	390.2	119.3	**8**	438.0	133.9	**8**	485.8	148.5	**8**	533.6	163.1
9	295.5	90.3	**9**	343.3	105.0	**9**	391.1	119.6	**9**	438.9	134.2	**9**	486.8	148.8	**9**	534.6	163.4
310	296.5	90.6	**360**	344.3	105.3	**410**	392.1	119.9	**460**	439.9	134.5	**510**	487.7	149.1	**560**	535.5	163.7
1	297.4	90.9	**1**	345.2	105.5	**1**	393.0	120.2	**1**	440.9	134.8	**1**	488.7	149.4	**1**	536.5	164.0
2	298.4	91.2	**2**	346.2	105.8	**2**	394.0	120.5	**2**	441.8	135.1	**2**	489.6	149.7	**2**	537.4	164.3
3	299.3	91.5	**3**	347.1	106.1	**3**	395.0	120.7	**3**	442.8	135.4	**3**	490.6	150.0	**3**	538.4	164.6
4	300.3	91.8	**4**	348.1	106.4	**4**	395.9	121.0	**4**	443.7	135.7	**4**	491.5	150.3	**4**	539.4	164.9
5	301.2	92.1	**5**	349.1	106.7	**5**	396.9	121.3	**5**	444.7	136.0	**5**	492.5	150.6	**5**	540.3	165.2
6	302.2	92.4	**6**	350.0	107.0	**6**	397.8	121.6	**6**	445.6	136.2	**6**	493.5	150.9	**6**	541.3	165.5
7	303.1	92.7	**7**	351.0	107.3	**7**	398.8	121.9	**7**	446.6	136.5	**7**	494.4	151.2	**7**	542.2	165.8
8	304.1	93.0	**8**	351.9	107.6	**8**	399.7	122.2	**8**	447.6	136.8	**8**	495.4	151.4	**8**	543.2	166.1
9	305.1	93.3	**9**	352.9	107.9	**9**	400.7	122.5	**9**	448.5	137.1	**9**	496.3	151.7	**9**	544.1	166.4
320	306.0	93.6	**370**	353.8	108.2	**420**	401.6	122.8	**470**	449.5	137.4	**520**	497.3	152.0	**570**	545.1	166.7
1	307.0	93.9	**1**	354.8	108.5	**1**	402.6	123.1	**1**	450.4	137.7	**1**	498.2	152.3	**1**	546.0	166.9
2	307.9	94.1	**2**	355.7	108.8	**2**	403.6	123.4	**2**	451.4	138.0	**2**	499.2	152.6	**2**	547.0	167.2
3	308.9	94.4	**3**	356.7	109.1	**3**	404.5	123.7	**3**	452.3	138.3	**3**	500.1	152.9	**3**	548.0	167.5
4	309.8	94.7	**4**	357.7	109.3	**4**	405.5	124.0	**4**	453.3	138.6	**4**	501.1	153.2	**4**	548.9	167.8
5	310.8	95.0	**5**	358.6	109.6	**5**	406.4	124.3	**5**	454.2	138.9	**5**	502.1	153.5	**5**	549.9	168.1
6	311.8	95.3	**6**	359.6	109.9	**6**	407.4	124.6	**6**	455.2	139.2	**6**	503.0	153.8	**6**	550.8	168.4
7	312.7	95.6	**7**	360.5	110.2	**7**	408.3	124.8	**7**	456.2	139.5	**7**	504.0	154.1	**7**	551.8	168.7
8	313.7	95.9	**8**	361.5	110.5	**8**	409.3	125.1	**8**	457.1	139.8	**8**	504.9	154.4	**8**	552.7	169.0
9	314.6	96.2	**9**	362.4	110.8	**9**	410.3	125.4	**9**	458.1	140.0	**9**	505.9	154.7	**9**	553.7	169.3
330	315.6	96.5	**380**	363.4	111.1	**430**	411.2	125.7	**480**	459.0	140.3	**530**	506.8	155.0	**580**	554.7	169.6
1	316.5	96.8	**1**	364.4	111.4	**1**	412.2	126.0	**1**	460.0	140.6	**1**	507.8	155.2	**1**	555.6	169.9
2	317.5	97.1	**2**	365.3	111.7	**2**	413.1	126.3	**2**	460.9	140.9	**2**	508.8	155.5	**2**	556.6	170.2
3	318.4	97.4	**3**	366.3	112.0	**3**	414.1	126.6	**3**	461.9	141.2	**3**	509.7	155.8	**3**	557.5	170.5
4	319.4	97.7	**4**	367.2	112.3	**4**	415.0	126.9	**4**	462.9	141.5	**4**	510.7	156.1	**4**	558.5	170.7
5	320.4	97.9	**5**	368.2	112.6	**5**	416.0	127.2	**5**	463.8	141.8	**5**	511.6	156.4	**5**	559.4	171.0
6	321.3	98.2	**6**	369.1	112.9	**6**	416.9	127.5	**6**	464.8	142.1	**6**	512.6	156.7	**6**	560.4	171.3
7	322.3	98.5	**7**	370.1	113.1	**7**	417.9	127.8	**7**	465.7	142.4	**7**	513.5	157.0	**7**	561.4	171.6
8	323.2	98.8	**8**	371.0	113.4	**8**	418.9	128.1	**8**	466.7	142.7	**8**	514.5	157.3	**8**	562.3	171.9
9	324.2	99.1	**9**	372.0	113.7	**9**	419.8	128.4	**9**	467.6	143.0	**9**	515.4	157.6	**9**	563.3	172.2
340	325.1	99.4	**390**	373.0	114.0	**440**	420.8	128.6	**490**	468.6	143.3	**540**	516.4	157.9	**590**	564.2	172.5
1	326.1	99.7	**1**	373.9	114.3	**1**	421.7	128.9	**1**	469.5	143.6	**1**	517.4	158.2	**1**	565.2	172.8
2	327.1	100.0	**2**	374.9	114.6	**2**	422.7	129.2	**2**	470.5	143.8	**2**	518.3	158.5	**2**	566.1	173.1
3	328.0	100.3	**3**	375.8	114.9	**3**	423.6	129.5	**3**	471.5	144.1	**3**	519.3	158.8	**3**	567.1	173.4
4	329.0	100.6	**4**	376.8	115.2	**4**	424.6	129.8	**4**	472.4	144.4	**4**	520.2	159.1	**4**	568.0	173.7
5	329.9	100.9	**5**	377.7	115.5	**5**	425.6	130.1	**5**	473.4	144.7	**5**	521.2	159.3	**5**	569.0	174.0
6	330.9	101.2	**6**	378.7	115.8	**6**	426.5	130.4	**6**	474.3	145.0	**6**	522.1	159.6	**6**	570.0	174.3
7	331.8	101.5	**7**	379.7	116.1	**7**	427.5	130.7	**7**	475.3	145.3	**7**	523.1	159.9	**7**	570.9	174.5
8	332.8	101.7	**8**	380.6	116.4	**8**	428.4	131.0	**8**	476.2	145.6	**8**	524.1	160.2	**8**	571.9	174.8
9	333.8	102.0	**9**	381.6	116.7	**9**	429.4	131.3	**9**	477.2	145.9	**9**	525.0	160.5	**9**	572.8	175.1
D	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ
ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap

271 287 315
269 253 225

R

089 073° 045
091 107 135

R ou φm

ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap	
D	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap
0	0.0	0.0	**50**	47.6	15.5	**100**	95.1	30.9	**150**	142.7	46.4	**200**	190.2	61.8	**250**	237.8	77.3
1	1.0	0.3	**1**	48.5	15.8	**1**	96.1	31.2	**1**	143.6	46.7	**1**	191.2	62.1	**1**	238.7	77.6
2	1.9	0.6	**2**	49.5	16.1	**2**	97.0	31.5	**2**	144.6	47.0	**2**	192.1	62.4	**2**	239.7	77.9
3	2.9	0.9	**3**	50.4	16.4	**3**	98.0	31.8	**3**	145.5	47.3	**3**	193.1	62.7	**3**	240.6	78.2
4	3.8	1.2	**4**	51.4	16.7	**4**	98.9	32.1	**4**	146.5	47.6	**4**	194.0	63.0	**4**	241.6	78.5
5	4.8	1.5	**5**	52.3	17.0	**5**	99.9	32.4	**5**	147.4	47.9	**5**	195.0	63.3	**5**	242.5	78.8
6	5.7	1.9	**6**	53.3	17.3	**6**	100.8	32.8	**6**	148.4	48.2	**6**	195.9	63.7	**6**	243.5	79.1
7	6.7	2.2	**7**	54.2	17.6	**7**	101.8	33.1	**7**	149.3	48.5	**7**	196.9	64.0	**7**	244.4	79.4
8	7.6	2.5	**8**	55.2	17.9	**8**	102.7	33.4	**8**	150.3	48.8	**8**	197.8	64.3	**8**	245.4	79.7
9	8.6	2.8	**9**	56.1	18.2	**9**	103.7	33.7	**9**	151.2	49.1	**9**	198.8	64.6	**9**	246.3	80.0
10	9.5	3.1	**60**	57.1	18.5	**110**	104.6	34.0	**160**	152.2	49.4	**210**	199.7	64.9	**260**	247.3	80.3
1	10.5	3.4	**1**	58.0	18.9	**1**	105.6	34.3	**1**	153.1	49.8	**1**	200.7	65.2	**1**	248.2	80.7
2	11.4	3.7	**2**	59.0	19.2	**2**	106.5	34.6	**2**	154.1	50.1	**2**	201.6	65.5	**2**	249.2	81.0
3	12.4	4.0	**3**	59.9	19.5	**3**	107.5	34.9	**3**	155.0	50.4	**3**	202.6	65.8	**3**	250.1	81.3
4	13.3	4.3	**4**	60.9	19.8	**4**	108.4	35.2	**4**	156.0	50.7	**4**	203.5	66.1	**4**	251.1	81.6
5	14.3	4.6	**5**	61.8	20.1	**5**	109.4	35.5	**5**	156.9	51.0	**5**	204.5	66.4	**5**	252.0	81.9
6	15.2	4.9	**6**	62.8	20.4	**6**	110.3	35.8	**6**	157.9	51.3	**6**	205.4	66.7	**6**	253.0	82.2
7	16.2	5.3	**7**	63.7	20.7	**7**	111.3	36.2	**7**	158.8	51.6	**7**	206.4	67.1	**7**	253.9	82.5
8	17.1	5.6	**8**	64.7	21.0	**8**	112.2	36.5	**8**	159.8	51.9	**8**	207.3	67.4	**8**	254.9	82.8
9	18.1	5.9	**9**	65.6	21.3	**9**	113.2	36.8	**9**	160.7	52.2	**9**	208.3	67.7	**9**	255.8	83.1
20	19.0	6.2	**70**	66.6	21.6	**120**	114.1	37.1	**170**	161.7	52.5	**220**	209.2	68.0	**270**	256.8	83.4
1	20.0	6.5	**1**	67.5	21.9	**1**	115.1	37.4	**1**	162.6	52.8	**1**	210.2	68.3	**1**	257.7	83.7
2	20.9	6.8	**2**	68.5	22.2	**2**	116.0	37.7	**2**	163.6	53.2	**2**	211.1	68.6	**2**	258.7	84.1
3	21.9	7.1	**3**	69.4	22.6	**3**	117.0	38.0	**3**	164.5	53.5	**3**	212.1	68.9	**3**	259.6	84.4
4	22.8	7.4	**4**	70.4	22.9	**4**	117.9	38.3	**4**	165.5	53.8	**4**	213.0	69.2	**4**	260.6	84.7
5	23.8	7.7	**5**	71.3	23.2	**5**	118.9	38.6	**5**	166.4	54.1	**5**	214.0	69.5	**5**	261.5	85.0
6	24.7	8.0	**6**	72.3	23.5	**6**	119.8	38.9	**6**	167.4	54.4	**6**	214.9	69.8	**6**	262.5	85.3
7	25.7	8.3	**7**	73.2	23.8	**7**	120.8	39.2	**7**	168.3	54.7	**7**	215.9	70.1	**7**	263.4	85.6
8	26.6	8.7	**8**	74.2	24.1	**8**	121.7	39.6	**8**	169.3	55.0	**8**	216.8	70.5	**8**	264.4	85.9
9	27.6	9.0	**9**	75.1	24.4	**9**	122.7	39.9	**9**	170.2	55.3	**9**	217.8	70.8	**9**	265.3	86.2
30	28.5	9.3	**80**	76.1	24.7	**130**	123.6	40.2	**180**	171.2	55.6	**230**	218.7	71.1	**280**	266.3	86.5
1	29.5	9.6	**1**	77.0	25.0	**1**	124.6	40.5	**1**	172.1	55.9	**1**	219.7	71.4	**1**	267.2	86.8
2	30.4	9.9	**2**	78.0	25.3	**2**	125.5	40.8	**2**	173.1	56.2	**2**	220.6	71.7	**2**	268.2	87.1
3	31.4	10.2	**3**	78.9	25.6	**3**	126.5	41.1	**3**	174.0	56.6	**3**	221.6	72.0	**3**	269.1	87.5
4	32.3	10.5	**4**	79.9	26.0	**4**	127.4	41.4	**4**	175.0	56.9	**4**	222.5	72.3	**4**	270.1	87.8
5	33.3	10.8	**5**	80.8	26.3	**5**	128.4	41.7	**5**	175.9	57.2	**5**	223.5	72.6	**5**	271.1	88.1
6	34.2	11.1	**6**	81.8	26.6	**6**	129.3	42.0	**6**	176.9	57.5	**6**	224.4	72.9	**6**	272.0	88.4
7	35.2	11.4	**7**	82.7	26.9	**7**	130.3	42.3	**7**	177.8	57.8	**7**	225.4	73.2	**7**	273.0	88.7
8	36.1	11.7	**8**	83.7	27.2	**8**	131.2	42.6	**8**	178.8	58.1	**8**	226.4	73.5	**8**	273.9	89.0
9	37.1	12.1	**9**	84.6	27.5	**9**	132.2	43.0	**9**	179.7	58.4	**9**	227.3	73.9	**9**	274.9	89.3
40	38.0	12.4	**90**	85.6	27.8	**140**	133.1	43.3	**190**	180.7	58.7	**240**	228.3	74.2	**290**	275.8	89.6
1	39.0	12.7	**1**	86.5	28.1	**1**	134.1	43.6	**1**	181.7	59.0	**1**	229.2	74.5	**1**	276.8	89.9
2	39.9	13.0	**2**	87.5	28.4	**2**	135.1	43.9	**2**	182.6	59.3	**2**	230.2	74.8	**2**	277.7	90.2
3	40.9	13.3	**3**	88.4	28.7	**3**	136.0	44.2	**3**	183.6	59.6	**3**	231.1	75.1	**3**	278.7	90.5
4	41.8	13.6	**4**	89.4	29.0	**4**	137.0	44.5	**4**	184.5	59.9	**4**	232.1	75.4	**4**	279.6	90.9
5	42.8	13.9	**5**	90.4	29.4	**5**	137.9	44.8	**5**	185.5	60.3	**5**	233.0	75.7	**5**	280.6	91.2
6	43.7	14.2	**6**	91.3	29.7	**6**	138.9	45.1	**6**	186.4	60.6	**6**	234.0	76.0	**6**	281.5	91.5
7	44.7	14.5	**7**	92.3	30.0	**7**	139.8	45.4	**7**	187.4	60.9	**7**	234.9	76.3	**7**	282.5	91.8
8	45.7	14.8	**8**	93.2	30.3	**8**	140.8	45.7	**8**	188.3	61.2	**8**	235.9	76.6	**8**	283.4	92.1
9	46.6	15.1	**9**	94.2	30.6	**9**	141.7	46.0	**9**	189.3	61.5	**9**	236.8	76.9	**9**	284.4	92.4
D	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ
ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap

ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap	
D	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap
300	285.3	92.7	**350**	332.9	108.2	**400**	380.4	123.6	**450**	428.0	139.1	**500**	475.5	154.5	**550**	523.1	170.0
1	286.3	93.0	**1**	333.8	108.5	**1**	381.4	123.9	**1**	428.9	139.4	**1**	476.5	154.8	**1**	524.0	170.3
2	287.2	93.3	**2**	334.8	108.8	**2**	382.3	124.2	**2**	429.9	139.7	**2**	477.4	155.1	**2**	525.0	170.6
3	288.2	93.6	**3**	335.7	109.1	**3**	383.3	124.5	**3**	430.8	140.0	**3**	478.4	155.4	**3**	525.9	170.9
4	289.1	93.9	**4**	336.7	109.4	**4**	384.2	124.8	**4**	431.8	140.3	**4**	479.3	155.7	**4**	526.9	171.2
5	290.1	94.3	**5**	337.6	109.7	**5**	385.2	125.2	**5**	432.7	140.6	**5**	480.3	156.1	**5**	527.8	171.5
6	291.0	94.6	**6**	338.6	110.0	**6**	386.1	125.5	**6**	433.7	140.9	**6**	481.2	156.4	**6**	528.8	171.8
7	292.0	94.9	**7**	339.5	110.3	**7**	387.1	125.8	**7**	434.6	141.2	**7**	482.2	156.7	**7**	529.7	172.1
8	292.9	95.2	**8**	340.5	110.6	**8**	388.0	126.1	**8**	435.6	141.5	**8**	483.1	157.0	**8**	530.7	172.4
9	293.9	95.5	**9**	341.4	110.9	**9**	389.0	126.4	**9**	436.5	141.8	**9**	484.1	157.3	**9**	531.6	172.7
310	294.8	95.8	**360**	342.4	111.2	**410**	389.9	126.7	**460**	437.5	142.1	**510**	485.0	157.6	**560**	532.6	173.0
1	295.8	96.1	**1**	343.3	111.6	**1**	390.9	127.0	**1**	438.4	142.5	**1**	486.0	157.9	**1**	533.5	173.4
2	296.7	96.4	**2**	344.3	111.9	**2**	391.8	127.3	**2**	439.4	142.8	**2**	486.9	158.2	**2**	534.5	173.7
3	297.7	96.7	**3**	345.2	112.2	**3**	392.8	127.6	**3**	440.3	143.1	**3**	487.9	158.5	**3**	535.4	174.0
4	298.6	97.0	**4**	346.2	112.5	**4**	393.7	127.9	**4**	441.3	143.4	**4**	488.8	158.8	**4**	536.4	174.3
5	299.6	97.3	**5**	347.1	112.8	**5**	394.7	128.2	**5**	442.2	143.7	**5**	489.8	159.1	**5**	537.3	174.6
6	300.5	97.6	**6**	348.1	113.1	**6**	395.6	128.6	**6**	443.2	144.0	**6**	490.7	159.5	**6**	538.3	174.9
7	301.5	98.0	**7**	349.0	113.4	**7**	396.6	128.9	**7**	444.1	144.3	**7**	491.7	159.8	**7**	539.2	175.2
8	302.4	98.3	**8**	350.0	113.7	**8**	397.5	129.2	**8**	445.1	144.6	**8**	492.6	160.1	**8**	540.2	175.5
9	303.4	98.6	**9**	350.9	114.0	**9**	398.5	129.5	**9**	446.0	144.9	**9**	493.6	160.4	**9**	541.2	175.8
320	304.3	98.9	**370**	351.9	114.3	**420**	399.4	129.8	**470**	447.0	145.2	**520**	494.5	160.7	**570**	542.1	176.1
1	305.3	99.2	**1**	352.8	114.6	**1**	400.4	130.1	**1**	447.9	145.5	**1**	495.5	161.0	**1**	543.1	176.4
2	306.2	99.5	**2**	353.8	115.0	**2**	401.3	130.4	**2**	448.9	145.9	**2**	496.5	161.3	**2**	544.0	176.8
3	307.2	99.8	**3**	354.7	115.3	**3**	402.3	130.7	**3**	449.8	146.2	**3**	497.4	161.6	**3**	545.0	177.1
4	308.1	100.1	**4**	355.7	115.6	**4**	403.2	131.0	**4**	450.8	146.5	**4**	498.4	161.9	**4**	545.9	177.4
5	309.1	100.4	**5**	356.6	115.9	**5**	404.2	131.3	**5**	451.8	146.8	**5**	499.3	162.2	**5**	546.9	177.7
6	310.0	100.7	**6**	357.6	116.2	**6**	405.1	131.6	**6**	452.7	147.1	**6**	500.3	162.5	**6**	547.8	178.0
7	311.0	101.0	**7**	358.5	116.5	**7**	406.1	132.0	**7**	453.7	147.4	**7**	501.2	162.9	**7**	548.8	178.3
8	311.9	101.4	**8**	359.5	116.8	**8**	407.1	132.3	**8**	454.6	147.7	**8**	502.2	163.2	**8**	549.7	178.6
9	312.9	101.7	**9**	360.5	117.1	**9**	408.0	132.6	**9**	455.6	148.0	**9**	503.1	163.5	**9**	550.7	178.9
330	313.8	102.0	**380**	361.4	117.4	**430**	409.0	132.9	**480**	456.5	148.3	**530**	504.1	163.8	**580**	551.6	179.2
1	314.8	102.3	**1**	362.4	117.7	**1**	409.9	133.2	**1**	457.5	148.6	**1**	505.0	164.1	**1**	552.6	179.5
2	315.8	102.6	**2**	363.3	118.0	**2**	410.9	133.5	**2**	458.4	148.9	**2**	506.0	164.4	**2**	553.5	179.8
3	316.7	102.9	**3**	364.3	118.4	**3**	411.8	133.8	**3**	459.4	149.3	**3**	506.9	164.7	**3**	554.5	180.2
4	317.7	103.2	**4**	365.2	118.7	**4**	412.8	134.1	**4**	460.3	149.6	**4**	507.9	165.0	**4**	555.4	180.5
5	318.6	103.5	**5**	366.2	119.0	**5**	413.7	134.4	**5**	461.3	149.9	**5**	508.8	165.3	**5**	556.4	180.8
6	319.6	103.8	**6**	367.1	119.3	**6**	414.7	134.7	**6**	462.2	150.2	**6**	509.8	165.6	**6**	557.3	181.1
7	320.5	104.1	**7**	368.1	119.6	**7**	415.6	135.0	**7**	463.2	150.5	**7**	510.7	165.9	**7**	558.3	181.4
8	321.5	104.4	**8**	369.0	119.9	**8**	416.6	135.3	**8**	464.1	150.8	**8**	511.7	166.3	**8**	559.2	181.7
9	322.4	104.8	**9**	370.0	120.2	**9**	417.5	135.7	**9**	465.1	151.1	**9**	512.6	166.6	**9**	560.2	182.0
340	323.4	105.1	**390**	370.9	120.5	**440**	418.5	136.0	**490**	466.0	151.4	**540**	513.6	166.9	**590**	561.1	182.3
1	324.3	105.4	**1**	371.9	120.8	**1**	419.4	136.3	**1**	467.0	151.7	**1**	514.5	167.2	**1**	562.1	182.6
2	325.3	105.7	**2**	372.8	121.1	**2**	420.4	136.6	**2**	467.9	152.0	**2**	515.5	167.5	**2**	563.0	182.9
3	326.2	106.0	**3**	373.8	121.4	**3**	421.3	136.9	**3**	468.9	152.3	**3**	516.4	167.8	**3**	564.0	183.2
4	327.2	106.3	**4**	374.7	121.8	**4**	422.3	137.2	**4**	469.8	152.7	**4**	517.4	168.1	**4**	564.9	183.6
5	328.1	106.6	**5**	375.7	122.1	**5**	423.2	137.5	**5**	470.8	153.0	**5**	518.3	168.4	**5**	565.9	183.9
6	329.1	106.9	**6**	376.6	122.4	**6**	424.2	137.8	**6**	471.7	153.3	**6**	519.3	168.7	**6**	566.8	184.2
7	330.0	107.2	**7**	377.6	122.7	**7**	425.1	138.1	**7**	472.7	153.6	**7**	520.2	169.0	**7**	567.8	184.5
8	331.0	107.5	**8**	378.5	123.0	**8**	426.1	138.4	**8**	473.6	153.9	**8**	521.2	169.3	**8**	568.7	184.8
9	331.9	107.8	**9**	379.5	123.3	**9**	427.0	138.7	**9**	474.6	154.2	**9**	522.1	169.7	**9**	569.7	185.1
D	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ
ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap

R

359 341° 315
181 199 225

TABELA 1

TÁBUAS DE CARTEAÇÃO

R ou φm

091 019 045
179 161 135

ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap	
D	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap
0	0.0	0.0	**50**	47.3	16.3	**100**	94.6	32.6	**150**	141.8	48.8	**200**	189.1	65.1	**250**	236.4	81.4
1	0.9	0.3	**1**	48.2	16.6	**1**	95.5	32.9	**1**	142.8	49.2	**1**	190.0	65.4	**1**	237.3	81.7
2	1.9	0.7	**2**	49.2	16.9	**2**	96.4	33.2	**2**	143.7	49.5	**2**	191.0	65.8	**2**	238.3	82.0
3	2.8	1.0	**3**	50.1	17.3	**3**	97.4	33.5	**3**	144.7	49.8	**3**	191.9	66.1	**3**	239.2	82.4
4	3.8	1.3	**4**	51.1	17.6	**4**	98.3	33.9	**4**	145.6	50.1	**4**	192.9	66.4	**4**	240.2	82.7
5	4.7	1.6	**5**	52.0	17.9	**5**	99.3	34.2	**5**	146.6	50.5	**5**	193.8	66.7	**5**	241.1	83.0
6	5.7	2.0	**6**	52.9	18.2	**6**	100.2	34.5	**6**	147.5	50.8	**6**	194.8	67.1	**6**	242.1	83.3
7	6.6	2.3	**7**	53.9	18.6	**7**	101.2	34.8	**7**	148.4	51.1	**7**	195.7	67.4	**7**	243.0	83.7
8	7.6	2.6	**8**	54.8	18.9	**8**	102.1	35.2	**8**	149.4	51.4	**8**	196.7	67.7	**8**	243.9	84.0
9	8.5	2.9	**9**	55.8	19.2	**9**	103.1	35.5	**9**	150.3	51.8	**9**	197.6	68.0	**9**	244.9	84.3
10	9.5	3.3	**60**	56.7	19.5	**110**	104.0	35.8	**160**	151.3	52.1	**210**	198.6	68.4	**260**	245.8	84.6
1	10.4	3.6	**1**	57.7	19.9	**1**	105.0	36.1	**1**	152.2	52.4	**1**	199.5	68.7	**1**	246.8	85.0
2	11.3	3.9	**2**	58.6	20.2	**2**	105.9	36.5	**2**	153.2	52.7	**2**	200.4	69.0	**2**	247.7	85.3
3	12.3	4.2	**3**	59.6	20.5	**3**	106.8	36.8	**3**	154.1	53.1	**3**	201.4	69.3	**3**	248.7	85.6
4	13.2	4.6	**4**	60.5	20.8	**4**	107.8	37.1	**4**	155.1	53.4	**4**	202.3	69.7	**4**	249.6	85.9
5	14.2	4.9	**5**	61.5	21.2	**5**	108.7	37.4	**5**	156.0	53.7	**5**	203.3	70.0	**5**	250.6	86.3
6	15.1	5.2	**6**	62.4	21.5	**6**	109.7	37.8	**6**	157.0	54.0	**6**	204.2	70.3	**6**	251.5	86.6
7	16.1	5.5	**7**	63.3	21.8	**7**	110.6	38.1	**7**	157.9	54.4	**7**	205.2	70.6	**7**	252.5	86.9
8	17.0	5.9	**8**	64.3	22.1	**8**	111.6	38.4	**8**	158.8	54.7	**8**	206.1	71.0	**8**	253.4	87.3
9	18.0	6.2	**9**	65.2	22.5	**9**	112.5	38.7	**9**	159.8	55.0	**9**	207.1	71.3	**9**	254.3	87.6
20	18.9	6.5	**70**	66.2	22.8	**120**	113.5	39.1	**170**	160.7	55.3	**220**	208.0	71.6	**270**	255.3	87.9
1	19.9	6.8	**1**	67.1	23.1	**1**	114.4	39.4	**1**	161.7	55.7	**1**	209.0	72.0	**1**	256.2	88.2
2	20.8	7.2	**2**	68.1	23.4	**2**	115.4	39.7	**2**	162.6	56.0	**2**	209.9	72.3	**2**	257.2	88.6
3	21.7	7.5	**3**	69.0	23.8	**3**	116.3	40.0	**3**	163.6	56.3	**3**	210.9	72.6	**3**	258.1	88.9
4	22.7	7.8	**4**	70.0	24.1	**4**	117.2	40.4	**4**	164.5	56.6	**4**	211.8	72.9	**4**	259.1	89.2
5	23.6	8.1	**5**	70.9	24.4	**5**	118.2	40.7	**5**	165.5	57.0	**5**	212.7	73.3	**5**	260.0	89.5
6	24.6	8.5	**6**	71.9	24.7	**6**	119.1	41.0	**6**	166.4	57.3	**6**	213.7	73.6	**6**	261.0	89.9
7	25.5	8.8	**7**	72.8	25.1	**7**	120.1	41.3	**7**	167.4	57.6	**7**	214.6	73.9	**7**	261.9	90.2
8	26.5	9.1	**8**	73.8	25.4	**8**	121.0	41.7	**8**	168.3	58.0	**8**	215.6	74.2	**8**	262.9	90.5
9	27.4	9.4	**9**	74.7	25.7	**9**	122.0	42.0	**9**	169.2	58.3	**9**	216.5	74.6	**9**	263.8	90.8
30	28.4	9.8	**80**	75.6	26.0	**130**	122.9	42.3	**180**	170.2	58.6	**230**	217.5	74.9	**280**	264.7	91.2
1	29.3	10.1	**1**	76.6	26.4	**1**	123.9	42.6	**1**	171.1	58.9	**1**	218.4	75.2	**1**	265.7	91.5
2	30.3	10.4	**2**	77.5	26.7	**2**	124.8	43.0	**2**	172.1	59.3	**2**	219.4	75.5	**2**	266.6	91.8
3	31.2	10.7	**3**	78.5	27.0	**3**	125.8	43.3	**3**	173.0	59.6	**3**	220.3	75.9	**3**	267.6	92.1
4	32.1	11.1	**4**	79.4	27.3	**4**	126.7	43.6	**4**	174.0	59.9	**4**	221.3	76.2	**4**	268.5	92.5
5	33.1	11.4	**5**	80.4	27.7	**5**	127.6	44.0	**5**	174.9	60.2	**5**	222.2	76.5	**5**	269.5	92.8
6	34.0	11.7	**6**	81.3	28.0	**6**	128.6	44.3	**6**	175.9	60.6	**6**	223.1	76.8	**6**	270.4	93.1
7	35.0	12.0	**7**	82.3	28.3	**7**	129.5	44.6	**7**	176.8	60.9	**7**	224.1	77.2	**7**	271.4	93.4
8	35.9	12.4	**8**	83.2	28.6	**8**	130.5	44.9	**8**	177.8	61.2	**8**	225.0	77.5	**8**	272.3	93.8
9	36.9	12.7	**9**	84.2	29.0	**9**	131.4	45.3	**9**	178.7	61.5	**9**	226.0	77.8	**9**	273.3	94.1
40	37.8	13.0	**90**	85.1	29.3	**140**	132.4	45.6	**190**	179.6	61.9	**240**	226.9	78.1	**290**	274.2	94.4
1	38.8	13.3	**1**	86.0	29.6	**1**	133.3	45.9	**1**	180.6	62.2	**1**	227.9	78.5	**1**	275.1	94.7
2	39.7	13.7	**2**	87.0	30.0	**2**	134.3	46.2	**2**	181.5	62.5	**2**	228.8	78.8	**2**	276.1	95.1
3	40.7	14.0	**3**	87.9	30.3	**3**	135.2	46.6	**3**	182.5	62.8	**3**	229.8	79.1	**3**	277.0	95.4
4	41.6	14.3	**4**	88.9	30.6	**4**	136.2	46.9	**4**	183.4	63.2	**4**	230.7	79.4	**4**	278.0	95.7
5	42.5	14.7	**5**	89.8	30.9	**5**	137.1	47.2	**5**	184.4	63.5	**5**	231.7	79.8	**5**	278.9	96.0
6	43.5	15.0	**6**	90.8	31.3	**6**	138.0	47.5	**6**	185.3	63.8	**6**	232.6	80.1	**6**	279.9	96.4
7	44.4	15.3	**7**	91.7	31.6	**7**	139.0	47.9	**7**	186.3	64.1	**7**	233.5	80.4	**7**	280.8	96.7
8	45.4	15.6	**8**	92.7	31.9	**8**	139.9	48.2	**8**	187.2	64.5	**8**	234.5	80.7	**8**	281.8	97.0
9	46.3	16.0	**9**	93.6	32.2	**9**	140.9	48.5	**9**	188.2	64.8	**9**	235.4	81.1	**9**	282.7	97.3
D	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ
ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap

271 289 315
269 251 225

R

089 071° 045
091 109 135

R ou φm

R

359 341° 315

181 199 225

TABELA 1

TÁBUAS DE CARTEAÇÃO

R ou φm

091 019 045

179 161 135

ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap	
D	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap
300	283.7	97.7	**350**	330.9	113.9	**400**	378.2	130.2	**450**	425.5	146.5	**500**	472.8	162.8	**550**	520.0	179.1
1	284.6	98.0	**1**	331.9	114.3	**1**	379.2	130.6	**1**	426.4	146.8	**1**	473.7	163.1	**1**	521.0	179.4
2	285.5	98.3	**2**	332.8	114.6	**2**	380.1	130.9	**2**	427.4	147.2	**2**	474.7	163.4	**2**	521.9	179.7
3	286.5	98.6	**3**	333.8	114.9	**3**	381.0	131.2	**3**	428.3	147.5	**3**	475.6	163.8	**3**	522.9	180.0
4	287.4	99.0	**4**	334.7	115.3	**4**	382.0	131.5	**4**	429.3	147.8	**4**	476.5	164.1	**4**	523.8	180.4
5	288.4	99.3	**5**	335.7	115.6	**5**	382.9	131.9	**5**	430.2	148.1	**5**	477.5	164.4	**5**	524.8	180.7
6	289.3	99.6	**6**	336.6	115.9	**6**	383.9	132.2	**6**	431.2	148.5	**6**	478.4	164.7	**6**	525.7	181.0
7	290.3	99.9	**7**	337.6	116.2	**7**	384.8	132.5	**7**	432.1	148.8	**7**	479.4	165.1	**7**	526.7	181.3
8	291.2	100.3	**8**	338.5	116.6	**8**	385.8	132.8	**8**	433.0	149.1	**8**	480.3	165.4	**8**	527.6	181.7
9	292.2	100.6	**9**	339.4	116.9	**9**	386.7	133.2	**9**	434.0	149.4	**9**	481.3	165.7	**9**	528.5	182.0
310	293.1	100.9	**360**	340.4	117.2	**410**	387.7	133.5	**460**	434.9	149.8	**510**	482.2	166.0	**560**	529.5	182.3
1	294.1	101.3	**1**	341.3	117.5	**1**	388.6	133.8	**1**	435.9	150.1	**1**	483.2	166.4	**1**	530.4	182.6
2	295.0	101.6	**2**	342.3	117.9	**2**	389.6	134.1	**2**	436.8	150.4	**2**	484.1	166.7	**2**	531.4	183.0
3	295.9	101.9	**3**	343.2	118.2	**3**	390.5	134.5	**3**	437.8	150.7	**3**	485.1	167.0	**3**	532.3	183.3
4	296.9	102.2	**4**	344.2	118.5	**4**	391.4	134.8	**4**	438.7	151.1	**4**	486.0	167.3	**4**	533.3	183.6
5	297.8	102.6	**5**	345.1	118.8	**5**	392.4	135.1	**5**	439.7	151.4	**5**	486.9	167.7	**5**	534.2	183.9
6	298.8	102.9	**6**	346.1	119.2	**6**	393.3	135.4	**6**	440.6	151.7	**6**	487.9	168.0	**6**	535.2	184.3
7	299.7	103.2	**7**	347.0	119.5	**7**	394.3	135.8	**7**	441.6	152.0	**7**	488.8	168.3	**7**	536.1	184.6
8	300.7	103.5	**8**	348.0	119.8	**8**	395.2	136.1	**8**	442.5	152.4	**8**	489.8	168.6	**8**	537.1	184.9
9	301.6	103.9	**9**	348.9	120.1	**9**	396.2	136.4	**9**	443.4	152.7	**9**	490.7	169.0	**9**	538.0	185.2
320	302.6	104.2	**370**	349.8	120.5	**420**	397.1	136.7	**470**	444.4	153.0	**520**	491.7	169.3	**570**	538.9	185.6
1	303.5	104.5	**1**	350.8	120.8	**1**	398.1	137.1	**1**	445.3	153.3	**1**	492.6	169.6	**1**	539.9	185.9
2	304.5	104.8	**2**	351.7	121.1	**2**	399.0	137.4	**2**	446.3	153.7	**2**	493.6	169.9	**2**	540.8	186.2
3	305.4	105.2	**3**	352.7	121.4	**3**	400.0	137.7	**3**	447.2	154.0	**3**	494.5	170.3	**3**	541.8	186.6
4	306.3	105.5	**4**	353.6	121.8	**4**	400.9	138.0	**4**	448.2	154.3	**4**	495.5	170.6	**4**	542.7	186.9
5	307.3	105.8	**5**	354.6	122.1	**5**	401.8	138.4	**5**	449.1	154.6	**5**	496.4	170.9	**5**	543.7	187.2
6	308.2	106.1	**6**	355.5	122.4	**6**	402.8	138.7	**6**	450.1	155.0	**6**	497.3	171.2	**6**	544.6	187.5
7	309.2	106.5	**7**	356.5	122.7	**7**	403.7	139.0	**7**	451.0	155.3	**7**	498.3	171.6	**7**	545.6	187.9
8	310.1	106.8	**8**	357.4	123.1	**8**	404.7	139.3	**8**	452.0	155.6	**8**	499.2	171.9	**8**	546.5	188.2
9	311.1	107.1	**9**	358.4	123.4	**9**	405.6	139.7	**9**	452.9	155.9	**9**	500.2	172.2	**9**	547.5	188.5
330	312.0	107.4	**380**	359.3	123.7	**430**	406.6	140.0	**480**	453.8	156.3	**530**	501.1	172.6	**580**	548.4	188.8
1	313.0	107.8	**1**	360.2	124.0	**1**	407.5	140.3	**1**	454.8	156.6	**1**	502.1	172.9	**1**	549.3	189.2
2	313.9	108.1	**2**	361.2	124.4	**2**	408.5	140.6	**2**	455.7	156.9	**2**	503.0	173.2	**2**	550.3	189.5
3	314.9	108.4	**3**	362.1	124.7	**3**	409.4	141.0	**3**	456.7	157.2	**3**	504.0	173.5	**3**	551.2	189.8
4	315.8	108.7	**4**	363.1	125.0	**4**	410.4	141.3	**4**	457.6	157.6	**4**	504.9	173.9	**4**	552.2	190.1
5	316.7	109.1	**5**	364.0	125.3	**5**	411.3	141.6	**5**	458.6	157.9	**5**	505.9	174.2	**5**	553.1	190.5
6	317.7	109.4	**6**	365.0	125.7	**6**	412.2	141.9	**6**	459.5	158.2	**6**	506.8	174.5	**6**	554.1	190.8
7	318.6	109.7	**7**	365.9	126.0	**7**	413.2	142.3	**7**	460.5	158.6	**7**	507.7	174.8	**7**	555.0	191.1
8	319.6	110.0	**8**	366.9	126.3	**8**	414.1	142.6	**8**	461.4	158.9	**8**	508.7	175.2	**8**	556.0	191.4
9	320.5	110.4	**9**	367.8	126.6	**9**	415.1	142.9	**9**	462.4	159.2	**9**	509.6	175.5	**9**	556.9	191.8
340	321.5	110.7	**390**	368.8	127.0	**440**	416.0	143.2	**490**	463.3	159.5	**540**	510.6	175.8	**590**	557.9	192.1
1	322.4	111.0	**1**	369.7	127.3	**1**	417.0	143.6	**1**	464.2	159.9	**1**	511.5	176.1	**1**	558.8	192.4
2	323.4	111.3	**2**	370.6	127.6	**2**	417.9	143.9	**2**	465.2	160.2	**2**	512.5	176.5	**2**	559.7	192.7
3	324.3	111.7	**3**	371.6	127.9	**3**	418.9	144.2	**3**	466.1	160.5	**3**	513.4	176.8	**3**	560.7	193.1
4	325.3	112.0	**4**	372.5	128.3	**4**	419.8	144.6	**4**	467.1	160.8	**4**	514.4	177.1	**4**	561.6	193.4
5	326.2	112.3	**5**	373.5	128.6	**5**	420.8	144.9	**5**	468.0	161.2	**5**	515.3	177.4	**5**	562.6	193.7
6	327.1	112.6	**6**	374.4	128.9	**6**	421.7	145.2	**6**	469.0	161.5	**6**	516.3	177.8	**6**	563.5	194.0
7	328.1	113.0	**7**	375.4	129.3	**7**	422.6	145.5	**7**	469.9	161.8	**7**	517.2	178.1	**7**	564.5	194.4
8	329.0	113.3	**8**	376.3	129.6	**8**	423.6	145.9	**8**	470.9	162.1	**8**	518.1	178.4	**8**	565.4	194.7
9	330.0	113.6	**9**	377.3	129.9	**9**	424.5	146.2	**9**	471.8	162.5	**9**	519.1	178.7	**9**	566.4	195.0
D	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ
ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap

271 289 315

269 251 225

R

089 071° 045

091 109 135

R ou φm

ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap	
D	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap
0	0.0	0.0	**50**	47.0	17.1	**100**	94.0	34.2	**150**	141.0	51.3	**200**	187.9	68.4	**250**	234.9	85.5
1	0.9	0.3	**1**	47.9	17.4	**1**	94.9	34.5	**1**	141.9	51.6	**1**	188.9	68.7	**1**	235.9	85.8
2	1.9	0.7	**2**	48.9	17.8	**2**	95.8	34.9	**2**	142.8	52.0	**2**	189.8	69.1	**2**	236.8	86.2
3	2.8	1.0	**3**	49.8	18.1	**3**	96.8	35.2	**3**	143.8	52.3	**3**	190.8	69.4	**3**	237.7	86.5
4	3.8	1.4	**4**	50.7	18.5	**4**	97.7	35.6	**4**	144.7	52.7	**4**	191.7	69.8	**4**	238.7	86.9
5	4.7	1.7	**5**	51.7	18.8	**5**	98.7	35.9	**5**	145.7	53.0	**5**	192.6	70.1	**5**	239.6	87.2
6	5.6	2.1	**6**	52.6	19.2	**6**	99.6	36.3	**6**	146.6	53.4	**6**	193.6	70.5	**6**	240.6	87.6
7	6.6	2.4	**7**	53.6	19.5	**7**	100.5	36.6	**7**	147.5	53.7	**7**	194.5	70.8	**7**	241.5	87.9
8	7.5	2.7	**8**	54.5	19.8	**8**	101.5	36.9	**8**	148.5	54.0	**8**	195.5	71.1	**8**	242.4	88.2
9	8.5	3.1	**9**	55.4	20.2	**9**	102.4	37.3	**9**	149.4	54.4	**9**	196.4	71.5	**9**	243.4	88.6
10	9.4	3.4	**60**	56.4	20.5	**110**	103.4	37.6	**160**	150.4	54.7	**210**	197.3	71.8	**260**	244.3	88.9
1	10.3	3.8	**1**	57.3	20.9	**1**	104.3	38.0	**1**	151.3	55.1	**1**	198.3	72.2	**1**	245.3	89.3
2	11.3	4.1	**2**	58.3	21.2	**2**	105.2	38.3	**2**	152.2	55.4	**2**	199.2	72.5	**2**	246.2	89.6
3	12.2	4.4	**3**	59.2	21.5	**3**	106.2	38.6	**3**	153.2	55.7	**3**	200.2	72.9	**3**	247.1	90.0
4	13.2	4.8	**4**	60.1	21.9	**4**	107.1	39.0	**4**	154.1	56.1	**4**	201.1	73.2	**4**	248.1	90.3
5	14.1	5.1	**5**	61.1	22.2	**5**	108.1	39.3	**5**	155.0	56.4	**5**	202.0	73.5	**5**	249.0	90.6
6	15.0	5.5	**6**	62.0	22.6	**6**	109.0	39.7	**6**	156.0	56.8	**6**	203.0	73.9	**6**	250.0	91.0
7	16.0	5.8	**7**	63.0	22.9	**7**	109.9	40.0	**7**	156.9	57.1	**7**	203.9	74.2	**7**	250.9	91.3
8	16.9	6.2	**8**	63.9	23.3	**8**	110.9	40.4	**8**	157.9	57.5	**8**	204.9	74.6	**8**	251.8	91.7
9	17.9	6.5	**9**	64.8	23.6	**9**	111.8	40.7	**9**	158.8	57.8	**9**	205.8	74.9	**9**	252.8	92.0
20	18.8	6.8	**70**	65.8	23.9	**120**	112.8	41.0	**170**	159.7	58.1	**220**	206.7	75.2	**270**	253.7	92.3
1	19.7	7.2	**1**	66.7	24.3	**1**	113.7	41.4	**1**	160.7	58.5	**1**	207.7	75.6	**1**	254.7	92.7
2	20.7	7.5	**2**	67.7	24.6	**2**	114.6	41.7	**2**	161.6	58.8	**2**	208.6	75.9	**2**	255.6	93.0
3	21.6	7.9	**3**	68.6	25.0	**3**	115.6	42.1	**3**	162.6	59.2	**3**	209.6	76.3	**3**	256.5	93.4
4	22.6	8.2	**4**	69.5	25.3	**4**	116.5	42.4	**4**	163.5	59.5	**4**	210.5	76.6	**4**	257.5	93.7
5	23.5	8.6	**5**	70.5	25.7	**5**	117.5	42.8	**5**	164.4	59.9	**5**	211.4	77.0	**5**	258.4	94.1
6	24.4	8.9	**6**	71.4	26.0	**6**	118.4	43.1	**6**	165.4	60.2	**6**	212.4	77.3	**6**	259.4	94.4
7	25.4	9.2	**7**	72.4	26.3	**7**	119.3	43.4	**7**	166.3	60.5	**7**	213.3	77.6	**7**	260.3	94.7
8	26.3	9.6	**8**	73.3	26.7	**8**	120.3	43.8	**8**	167.3	60.9	**8**	214.2	78.0	**8**	261.2	95.1
9	27.3	9.9	**9**	74.2	27.0	**9**	121.2	44.1	**9**	168.2	61.2	**9**	215.2	78.3	**9**	262.2	95.4
30	28.2	10.3	**80**	75.2	27.4	**130**	122.2	44.5	**180**	169.1	61.6	**230**	216.1	78.7	**280**	263.1	95.8
1	29.1	10.6	**1**	76.1	27.7	**1**	123.1	44.8	**1**	170.1	61.9	**1**	217.1	79.0	**1**	264.1	96.1
2	30.1	10.9	**2**	77.1	28.0	**2**	124.0	45.1	**2**	171.0	62.2	**2**	218.0	79.3	**2**	265.0	96.4
3	31.0	11.3	**3**	78.0	28.4	**3**	125.0	45.5	**3**	172.0	62.6	**3**	218.9	79.7	**3**	265.9	96.8
4	31.9	11.6	**4**	78.9	28.7	**4**	125.9	45.8	**4**	172.9	62.9	**4**	219.9	80.0	**4**	266.9	97.1
5	32.9	12.0	**5**	79.9	29.1	**5**	126.9	46.2	**5**	173.8	63.3	**5**	220.8	80.4	**5**	267.8	97.5
6	33.8	12.3	**6**	80.8	29.4	**6**	127.8	46.5	**6**	174.8	63.6	**6**	221.8	80.7	**6**	268.8	97.8
7	34.8	12.7	**7**	81.8	29.8	**7**	128.7	46.9	**7**	175.7	64.0	**7**	222.7	81.1	**7**	269.7	98.2
8	35.7	13.0	**8**	82.7	30.1	**8**	129.7	47.2	**8**	176.7	64.3	**8**	223.6	81.4	**8**	270.6	98.5
9	36.6	13.3	**9**	83.6	30.4	**9**	130.6	47.5	**9**	177.6	64.6	**9**	224.6	81.7	**9**	271.6	98.8
40	37.6	13.7	**90**	84.6	30.8	**140**	131.6	47.9	**190**	178.5	65.0	**240**	225.5	82.1	**290**	272.5	99.2
1	38.5	14.0	**1**	85.5	31.1	**1**	132.5	48.2	**1**	179.5	65.3	**1**	226.5	82.4	**1**	273.5	99.5
2	39.5	14.4	**2**	86.5	31.5	**2**	133.4	48.6	**2**	180.4	65.7	**2**	227.4	82.8	**2**	274.4	99.9
3	40.4	14.7	**3**	87.4	31.8	**3**	134.4	48.9	**3**	181.4	66.0	**3**	228.3	83.1	**3**	275.3	100.2
4	41.3	15.0	**4**	88.3	32.1	**4**	135.3	49.3	**4**	182.3	66.4	**4**	229.3	83.5	**4**	276.3	100.6
5	42.3	15.4	**5**	89.3	32.5	**5**	136.3	49.6	**5**	183.2	66.7	**5**	230.2	83.8	**5**	277.2	100.9
6	43.2	15.7	**6**	90.2	32.8	**6**	137.2	49.9	**6**	184.2	67.0	**6**	231.2	84.1	**6**	278.1	101.2
7	44.2	16.1	**7**	91.2	33.2	**7**	138.1	50.3	**7**	185.1	67.4	**7**	232.1	84.5	**7**	279.1	101.6
8	45.1	16.4	**8**	92.1	33.5	**8**	139.1	50.6	**8**	186.1	67.7	**8**	233.0	84.8	**8**	280.0	101.9
9	46.0	16.8	**9**	93.0	33.9	**9**	140.0	51.0	**9**	187.0	68.1	**9**	234.0	85.2	**9**	281.0	102.3
D	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ
ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap

ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap	
D	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap
300	281.9	102.6	**350**	328.9	119.7	**400**	375.9	136.8	**450**	422.9	153.9	**500**	469.8	171.0	**550**	516.8	188.1
1	282.8	102.9	**1**	329.8	120.0	**1**	376.8	137.2	**1**	423.8	154.3	**1**	470.8	171.4	**1**	517.8	188.5
2	283.8	103.3	**2**	330.8	120.4	**2**	377.8	137.5	**2**	424.7	154.6	**2**	471.7	171.7	**2**	518.7	188.8
3	284.7	103.6	**3**	331.7	120.7	**3**	378.7	137.8	**3**	425.7	154.9	**3**	472.7	172.0	**3**	519.6	189.1
4	285.7	104.0	**4**	332.7	121.1	**4**	379.6	138.2	**4**	426.6	155.3	**4**	473.6	172.4	**4**	520.6	189.5
5	286.6	104.3	**5**	333.6	121.4	**5**	380.6	138.5	**5**	427.6	155.6	**5**	474.5	172.7	**5**	521.5	189.8
6	287.5	104.7	**6**	334.5	121.8	**6**	381.5	138.9	**6**	428.5	156.0	**6**	475.5	173.1	**6**	522.5	190.2
7	288.5	105.0	**7**	335.5	122.1	**7**	382.5	139.2	**7**	429.4	156.3	**7**	476.4	173.4	**7**	523.4	190.5
8	289.4	105.3	**8**	336.4	122.4	**8**	383.4	139.5	**8**	430.4	156.6	**8**	477.4	173.7	**8**	524.3	190.8
9	290.4	105.7	**9**	337.3	122.8	**9**	384.3	139.9	**9**	431.3	157.0	**9**	478.3	174.1	**9**	525.3	191.2
310	291.3	106.0	**360**	338.3	123.1	**410**	385.3	140.2	**460**	432.3	157.3	**510**	479.2	174.4	**560**	526.2	191.5
1	292.2	106.4	**1**	339.2	123.5	**1**	386.2	140.6	**1**	433.2	157.7	**1**	480.2	174.8	**1**	527.2	191.9
2	293.2	106.7	**2**	340.2	123.8	**2**	387.2	140.9	**2**	434.1	158.0	**2**	481.1	175.1	**2**	528.1	192.2
3	294.1	107.1	**3**	341.1	124.2	**3**	388.1	141.3	**3**	435.1	158.4	**3**	482.1	175.5	**3**	529.0	192.6
4	295.1	107.4	**4**	342.0	124.5	**4**	389.0	141.6	**4**	436.0	158.7	**4**	483.0	175.8	**4**	530.0	192.9
5	296.0	107.7	**5**	343.0	124.8	**5**	390.0	141.9	**5**	437.0	159.0	**5**	483.9	176.1	**5**	530.9	193.2
6	296.9	108.1	**6**	343.9	125.2	**6**	390.9	142.3	**6**	437.9	159.4	**6**	484.9	176.5	**6**	531.9	193.6
7	297.9	108.4	**7**	344.9	125.5	**7**	391.9	142.6	**7**	438.8	159.7	**7**	485.8	176.8	**7**	532.8	193.9
8	298.8	108.8	**8**	345.8	125.9	**8**	392.8	143.0	**8**	439.8	160.1	**8**	486.8	177.2	**8**	533.7	194.3
9	299.8	109.1	**9**	346.7	126.2	**9**	393.7	143.3	**9**	440.7	160.4	**9**	487.7	177.5	**9**	534.7	194.6
320	300.7	109.4	**370**	347.7	126.5	**420**	394.7	143.6	**470**	441.7	160.7	**520**	488.6	177.9	**570**	535.6	195.0
1	301.6	109.8	**1**	348.6	126.9	**1**	395.6	144.0	**1**	442.6	161.1	**1**	489.6	178.2	**1**	536.6	195.3
2	302.6	110.1	**2**	349.6	127.2	**2**	396.6	144.3	**2**	443.5	161.4	**2**	490.5	178.5	**2**	537.5	195.6
3	303.5	110.5	**3**	350.5	127.6	**3**	397.5	144.7	**3**	444.5	161.8	**3**	491.5	178.9	**3**	538.4	196.0
4	304.5	110.8	**4**	351.4	127.9	**4**	398.4	145.0	**4**	445.4	162.1	**4**	492.4	179.2	**4**	539.4	196.3
5	305.4	111.2	**5**	352.4	128.3	**5**	399.4	145.4	**5**	446.4	162.5	**5**	493.3	179.6	**5**	540.3	196.7
6	306.3	111.5	**6**	353.3	128.6	**6**	400.3	145.7	**6**	447.3	162.8	**6**	494.3	179.9	**6**	541.3	197.0
7	307.3	111.8	**7**	354.3	128.9	**7**	401.2	146.0	**7**	448.2	163.1	**7**	495.2	180.2	**7**	542.2	197.3
8	308.2	112.2	**8**	355.2	129.3	**8**	402.2	146.4	**8**	449.2	163.5	**8**	496.2	180.6	**8**	543.1	197.7
9	309.2	112.5	**9**	356.1	129.6	**9**	403.1	146.7	**9**	450.1	163.8	**9**	497.1	180.9	**9**	544.1	198.0
330	310.1	112.9	**380**	357.1	130.0	**430**	404.1	147.1	**480**	451.1	164.2	**530**	498.0	181.3	**580**	545.0	198.4
1	311.0	113.2	**1**	358.0	130.3	**1**	405.0	147.4	**1**	452.0	164.5	**1**	499.0	181.6	**1**	546.0	198.7
2	312.0	113.6	**2**	359.0	130.7	**2**	405.9	147.8	**2**	452.9	164.9	**2**	499.9	182.0	**2**	546.9	199.1
3	312.9	113.9	**3**	359.9	131.0	**3**	406.9	148.1	**3**	453.9	165.2	**3**	500.9	182.3	**3**	547.8	199.4
4	313.9	114.2	**4**	360.8	131.3	**4**	407.8	148.4	**4**	454.8	165.5	**4**	501.8	182.6	**4**	548.8	199.7
5	314.8	114.6	**5**	361.8	131.7	**5**	408.8	148.8	**5**	455.8	165.9	**5**	502.7	183.0	**5**	549.7	200.1
6	315.7	114.9	**6**	362.7	132.0	**6**	409.7	149.1	**6**	456.7	166.2	**6**	503.7	183.3	**6**	550.7	200.4
7	316.7	115.3	**7**	363.7	132.4	**7**	410.6	149.5	**7**	457.6	166.6	**7**	504.6	183.7	**7**	551.6	200.8
8	317.6	115.6	**8**	364.6	132.7	**8**	411.6	149.8	**8**	458.6	166.9	**8**	505.6	184.0	**8**	552.5	201.1
9	318.6	115.9	**9**	365.5	133.0	**9**	412.5	150.1	**9**	459.5	167.2	**9**	506.5	184.3	**9**	553.5	201.4
340	319.5	116.3	**390**	366.5	133.4	**440**	413.5	150.5	**490**	460.4	167.6	**540**	507.4	184.7	**590**	554.4	201.8
1	320.4	116.6	**1**	367.4	133.7	**1**	414.4	150.8	**1**	461.4	167.9	**1**	508.4	185.0	**1**	555.4	202.1
2	321.4	117.0	**2**	368.4	134.1	**2**	415.3	151.2	**2**	462.3	168.3	**2**	509.3	185.4	**2**	556.3	202.5
3	322.3	117.3	**3**	369.3	134.4	**3**	416.3	151.5	**3**	463.3	168.6	**3**	510.3	185.7	**3**	557.2	202.8
4	323.3	117.7	**4**	370.2	134.8	**4**	417.2	151.9	**4**	464.2	169.0	**4**	511.2	186.1	**4**	558.2	203.2
5	324.2	118.0	**5**	371.2	135.1	**5**	418.2	152.2	**5**	465.1	169.3	**5**	512.1	186.4	**5**	559.1	203.5
6	325.1	118.3	**6**	372.1	135.4	**6**	419.1	152.5	**6**	466.1	169.6	**6**	513.1	186.7	**6**	560.1	203.8
7	326.1	118.7	**7**	373.1	135.8	**7**	420.0	152.9	**7**	467.0	170.0	**7**	514.0	187.1	**7**	561.0	204.2
8	327.0	119.0	**8**	374.0	136.1	**8**	421.0	153.2	**8**	468.0	170.3	**8**	515.0	187.4	**8**	561.9	204.5
9	328.0	119.4	**9**	374.9	136.5	**9**	421.9	153.6	**9**	468.9	170.7	**9**	515.9	187.8	**9**	562.9	204.9
D	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ
ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap

ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap	
D	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap
0	0.0	0.0	**50**	46.7	17.9	**100**	93.4	35.8	**150**	140.0	53.8	**200**	186.7	71.7	**250**	233.4	89.6
1	0.9	0.4	**1**	47.6	18.3	**1**	94.3	36.2	**1**	141.0	54.1	**1**	187.6	72.0	**1**	234.3	90.0
2	1.9	0.7	**2**	48.5	18.6	**2**	95.2	36.6	**2**	141.9	54.5	**2**	188.6	72.4	**2**	235.3	90.3
3	2.8	1.1	**3**	49.5	19.0	**3**	96.2	36.9	**3**	142.8	54.8	**3**	189.5	72.7	**3**	236.2	90.7
4	3.7	1.4	**4**	50.4	19.4	**4**	97.1	37.3	**4**	143.8	55.2	**4**	190.5	73.1	**4**	237.1	91.0
5	4.7	1.8	**5**	51.3	19.7	**5**	98.0	37.6	**5**	144.7	55.5	**5**	191.4	73.5	**5**	238.1	91.4
6	5.6	2.2	**6**	52.3	20.1	**6**	99.0	38.0	**6**	145.6	55.9	**6**	192.3	73.8	**6**	239.0	91.7
7	6.5	2.5	**7**	53.2	20.4	**7**	99.9	38.3	**7**	146.6	56.3	**7**	193.3	74.2	**7**	239.9	92.1
8	7.5	2.9	**8**	54.1	20.8	**8**	100.8	38.7	**8**	147.5	56.6	**8**	194.2	74.5	**8**	240.9	92.5
9	8.4	3.2	**9**	55.1	21.1	**9**	101.8	39.1	**9**	148.4	57.0	**9**	195.1	74.9	**9**	241.8	92.8
10	9.3	3.6	**60**	56.0	21.5	**110**	102.7	39.4	**160**	149.4	57.3	**210**	196.1	75.3	**260**	242.7	93.2
1	10.3	3.9	**1**	56.9	21.9	**1**	103.6	39.8	**1**	150.3	57.7	**1**	197.0	75.6	**1**	243.7	93.5
2	11.2	4.3	**2**	57.9	22.2	**2**	104.6	40.1	**2**	151.2	58.1	**2**	197.9	76.0	**2**	244.6	93.9
3	12.1	4.7	**3**	58.8	22.6	**3**	105.5	40.5	**3**	152.2	58.4	**3**	198.9	76.3	**3**	245.5	94.3
4	13.1	5.0	**4**	59.7	22.9	**4**	106.4	40.9	**4**	153.1	58.8	**4**	199.8	76.7	**4**	246.5	94.6
5	14.0	5.4	**5**	60.7	23.3	**5**	107.4	41.2	**5**	154.0	59.1	**5**	200.7	77.0	**5**	247.4	95.0
6	14.9	5.7	**6**	61.6	23.7	**6**	108.3	41.6	**6**	155.0	59.5	**6**	201.7	77.4	**6**	248.3	95.3
7	15.9	6.1	**7**	62.5	24.0	**7**	109.2	41.9	**7**	155.9	59.8	**7**	202.6	77.8	**7**	249.3	95.7
8	16.8	6.5	**8**	63.5	24.4	**8**	110.2	42.3	**8**	156.8	60.2	**8**	203.5	78.1	**8**	250.2	96.0
9	17.7	6.8	**9**	64.4	24.7	**9**	111.1	42.6	**9**	157.8	60.6	**9**	204.5	78.5	**9**	251.1	96.4
20	18.7	7.2	**70**	65.4	25.1	**120**	112.0	43.0	**170**	158.7	60.9	**220**	205.4	78.8	**270**	252.1	96.8
1	19.6	7.5	**1**	66.3	25.4	**1**	113.0	43.4	**1**	159.6	61.3	**1**	206.3	79.2	**1**	253.0	97.1
2	20.5	7.9	**2**	67.2	25.8	**2**	113.9	43.7	**2**	160.6	61.6	**2**	207.3	79.6	**2**	253.9	97.5
3	21.5	8.2	**3**	68.2	26.2	**3**	114.8	44.1	**3**	161.5	62.0	**3**	208.2	79.9	**3**	254.9	97.8
4	22.4	8.6	**4**	69.1	26.5	**4**	115.8	44.4	**4**	162.4	62.4	**4**	209.1	80.3	**4**	255.8	98.2
5	23.3	9.0	**5**	70.0	26.9	**5**	116.7	44.8	**5**	163.4	62.7	**5**	210.1	80.6	**5**	256.7	98.6
6	24.3	9.3	**6**	71.0	27.2	**6**	117.6	45.2	**6**	164.3	63.1	**6**	211.0	81.0	**6**	257.7	98.9
7	25.2	9.7	**7**	71.9	27.6	**7**	118.6	45.5	**7**	165.2	63.4	**7**	211.9	81.3	**7**	258.6	99.3
8	26.1	10.0	**8**	72.8	28.0	**8**	119.5	45.9	**8**	166.2	63.8	**8**	212.9	81.7	**8**	259.5	99.6
9	27.1	10.4	**9**	73.8	28.3	**9**	120.4	46.2	**9**	167.1	64.1	**9**	213.8	82.1	**9**	260.5	100.0
30	28.0	10.8	**80**	74.7	28.7	**130**	121.4	46.6	**180**	168.0	64.5	**230**	214.7	82.4	**280**	261.4	100.3
1	28.9	11.1	**1**	75.6	29.0	**1**	122.3	46.9	**1**	169.0	64.9	**1**	215.7	82.8	**1**	262.3	100.7
2	29.9	11.5	**2**	76.6	29.4	**2**	123.2	47.3	**2**	169.9	65.2	**2**	216.6	83.1	**2**	263.3	101.1
3	30.8	11.8	**3**	77.5	29.7	**3**	124.2	47.7	**3**	170.8	65.6	**3**	217.5	83.5	**3**	264.2	101.4
4	31.7	12.2	**4**	78.4	30.1	**4**	125.1	48.0	**4**	171.8	65.9	**4**	218.5	83.9	**4**	265.1	101.8
5	32.7	12.5	**5**	79.4	30.5	**5**	126.0	48.4	**5**	172.7	66.3	**5**	219.4	84.2	**5**	266.1	102.1
6	33.6	12.9	**6**	80.3	30.8	**6**	127.0	48.7	**6**	173.6	66.7	**6**	220.3	84.6	**6**	267.0	102.5
7	34.5	13.3	**7**	81.2	31.2	**7**	127.9	49.1	**7**	174.6	67.0	**7**	221.3	84.9	**7**	267.9	102.9
8	35.5	13.6	**8**	82.2	31.5	**8**	128.8	49.5	**8**	175.5	67.4	**8**	222.2	85.3	**8**	268.9	103.2
9	36.4	14.0	**9**	83.1	31.9	**9**	129.8	49.8	**9**	176.4	67.7	**9**	223.1	85.6	**9**	269.8	103.6
40	37.3	14.3	**90**	84.0	32.3	**140**	130.7	50.2	**190**	177.4	68.1	**240**	224.1	86.0	**290**	270.7	103.9
1	38.3	14.7	**1**	85.0	32.6	**1**	131.6	50.5	**1**	178.3	68.4	**1**	225.0	86.4	**1**	271.7	104.3
2	39.2	15.1	**2**	85.9	33.0	**2**	132.6	50.9	**2**	179.2	68.8	**2**	225.9	86.7	**2**	272.6	104.6
3	40.1	15.4	**3**	86.8	33.3	**3**	133.5	51.2	**3**	180.2	69.2	**3**	226.9	87.1	**3**	273.5	105.0
4	41.1	15.8	**4**	87.8	33.7	**4**	134.4	51.6	**4**	181.1	69.5	**4**	227.8	87.4	**4**	274.5	105.4
5	42.0	16.1	**5**	88.7	34.0	**5**	135.4	52.0	**5**	182.0	69.9	**5**	228.7	87.8	**5**	275.4	105.7
6	42.9	16.5	**6**	89.6	34.4	**6**	136.3	52.3	**6**	183.0	70.2	**6**	229.7	88.2	**6**	276.3	106.1
7	43.9	16.8	**7**	90.6	34.8	**7**	137.2	52.7	**7**	183.9	70.6	**7**	230.6	88.5	**7**	277.3	106.4
8	44.8	17.2	**8**	91.5	35.1	**8**	138.2	53.0	**8**	184.8	71.0	**8**	231.5	88.9	**8**	278.2	106.8
9	45.7	17.6	**9**	92.4	35.5	**9**	139.1	53.4	**9**	185.8	71.3	**9**	232.5	89.2	**9**	279.1	107.2
D	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ
ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap

ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap	
D	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap
300	280.1	107.5	**350**	326.8	125.4	**400**	373.4	143.3	**450**	420.1	161.3	**500**	466.8	179.2	**550**	513.5	197.1
1	281.0	107.9	**1**	327.7	125.8	**1**	374.4	143.7	**1**	421.0	161.6	**1**	467.7	179.5	**1**	514.4	197.5
2	281.9	108.2	**2**	328.6	126.1	**2**	375.3	144.1	**2**	422.0	162.0	**2**	468.7	179.9	**2**	515.3	197.8
3	282.9	108.6	**3**	329.6	126.5	**3**	376.2	144.4	**3**	422.9	162.3	**3**	469.6	180.3	**3**	516.3	198.2
4	283.8	108.9	**4**	330.5	126.9	**4**	377.2	144.8	**4**	423.8	162.7	**4**	470.5	180.6	**4**	517.2	198.5
5	284.7	109.3	**5**	331.4	127.2	**5**	378.1	145.1	**5**	424.8	163.1	**5**	471.5	181.0	**5**	518.1	198.9
6	285.7	109.7	**6**	332.4	127.6	**6**	379.0	145.5	**6**	425.7	163.4	**6**	472.4	181.3	**6**	519.1	199.3
7	286.6	110.0	**7**	333.3	127.9	**7**	380.0	145.9	**7**	426.6	163.8	**7**	473.3	181.7	**7**	520.0	199.6
8	287.5	110.4	**8**	334.2	128.3	**8**	380.9	146.2	**8**	427.6	164.1	**8**	474.3	182.1	**8**	520.9	200.0
9	288.5	110.7	**9**	335.2	128.7	**9**	381.8	146.6	**9**	428.5	164.5	**9**	475.2	182.4	**9**	521.9	200.3
310	289.4	111.1	**360**	336.1	129.0	**410**	382.8	146.9	**460**	429.4	164.8	**510**	476.1	182.8	**560**	522.8	200.7
1	290.3	111.5	**1**	337.0	129.4	**1**	383.7	147.3	**1**	430.4	165.2	**1**	477.1	183.1	**1**	523.7	201.0
2	291.3	111.8	**2**	338.0	129.7	**2**	384.6	147.6	**2**	431.3	165.6	**2**	478.0	183.5	**2**	524.7	201.4
3	292.2	112.2	**3**	338.9	130.1	**3**	385.6	148.0	**3**	432.2	165.9	**3**	478.9	183.8	**3**	525.6	201.8
4	293.1	112.5	**4**	339.8	130.4	**4**	386.5	148.4	**4**	433.2	166.3	**4**	479.9	184.2	**4**	526.5	202.1
5	294.1	112.9	**5**	340.8	130.8	**5**	387.4	148.7	**5**	434.1	166.6	**5**	480.8	184.6	**5**	527.5	202.5
6	295.0	113.2	**6**	341.7	131.2	**6**	388.4	149.1	**6**	435.0	167.0	**6**	481.7	184.9	**6**	528.4	202.8
7	295.9	113.6	**7**	342.6	131.5	**7**	389.3	149.4	**7**	436.0	167.4	**7**	482.7	185.3	**7**	529.3	203.2
8	296.9	114.0	**8**	343.6	131.9	**8**	390.2	149.8	**8**	436.9	167.7	**8**	483.6	185.6	**8**	530.3	203.6
9	297.8	114.3	**9**	344.5	132.2	**9**	391.2	150.2	**9**	437.8	168.1	**9**	484.5	186.0	**9**	531.2	203.9
320	298.7	114.7	**370**	345.4	132.6	**420**	392.1	150.5	**470**	438.8	168.4	**520**	485.5	186.4	**570**	532.1	204.3
1	299.7	115.0	**1**	346.4	133.0	**1**	393.0	150.9	**1**	439.7	168.8	**1**	486.4	186.7	**1**	533.1	204.6
2	300.6	115.4	**2**	347.3	133.3	**2**	394.0	151.2	**2**	440.6	169.1	**2**	487.3	187.1	**2**	534.0	205.0
3	301.5	115.8	**3**	348.2	133.7	**3**	394.9	151.6	**3**	441.6	169.5	**3**	488.3	187.4	**3**	534.9	205.3
4	302.5	116.1	**4**	349.2	134.0	**4**	395.8	151.9	**4**	442.5	169.9	**4**	489.2	187.8	**4**	535.9	205.7
5	303.4	116.5	**5**	350.1	134.4	**5**	396.8	152.3	**5**	443.5	170.2	**5**	490.1	188.1	**5**	536.8	206.1
6	304.3	116.8	**6**	351.0	134.7	**6**	397.7	152.7	**6**	444.4	170.6	**6**	491.1	188.5	**6**	537.7	206.4
7	305.3	117.2	**7**	352.0	135.1	**7**	398.6	153.0	**7**	445.3	170.9	**7**	492.0	188.9	**7**	538.7	206.8
8	306.2	117.5	**8**	352.9	135.5	**8**	399.6	153.4	**8**	446.3	171.3	**8**	492.9	189.2	**8**	539.6	207.1
9	307.1	117.9	**9**	353.8	135.8	**9**	400.5	153.7	**9**	447.2	171.7	**9**	493.9	189.6	**9**	540.5	207.5
330	308.1	118.3	**380**	354.8	136.2	**430**	401.4	154.1	**480**	448.1	172.0	**530**	494.8	189.9	**580**	541.5	207.9
1	309.0	118.6	**1**	355.7	136.5	**1**	402.4	154.5	**1**	449.1	172.4	**1**	495.7	190.3	**1**	542.4	208.2
2	309.9	119.0	**2**	356.6	136.9	**2**	403.3	154.8	**2**	450.0	172.7	**2**	496.7	190.7	**2**	543.3	208.6
3	310.9	119.3	**3**	357.6	137.3	**3**	404.2	155.2	**3**	450.9	173.1	**3**	497.6	191.0	**3**	544.3	208.9
4	311.8	119.7	**4**	358.5	137.6	**4**	405.2	155.5	**4**	451.9	173.5	**4**	498.5	191.4	**4**	545.2	209.3
5	312.7	120.1	**5**	359.4	138.0	**5**	406.1	155.9	**5**	452.8	173.8	**5**	499.5	191.7	**5**	546.1	209.6
6	313.7	120.4	**6**	360.4	138.3	**6**	407.0	156.2	**6**	453.7	174.2	**6**	500.4	192.1	**6**	547.1	210.0
7	314.6	120.8	**7**	361.3	138.7	**7**	408.0	156.6	**7**	454.7	174.5	**7**	501.3	192.4	**7**	548.0	210.4
8	315.6	121.1	**8**	362.2	139.0	**8**	408.9	157.0	**8**	455.6	174.9	**8**	502.3	192.8	**8**	548.9	210.7
9	316.5	121.5	**9**	363.2	139.4	**9**	409.8	157.3	**9**	456.5	175.2	**9**	503.2	193.2	**9**	549.9	211.1
340	317.4	121.8	**390**	364.1	139.8	**440**	410.8	157.7	**490**	457.5	175.6	**540**	504.1	193.5	**590**	550.8	211.4
1	318.4	122.2	**1**	365.0	140.1	**1**	411.7	158.0	**1**	458.4	176.0	**1**	505.1	193.9	**1**	551.7	211.8
2	319.3	122.6	**2**	366.0	140.5	**2**	412.6	158.4	**2**	459.3	176.3	**2**	506.0	194.2	**2**	552.7	212.2
3	320.2	122.9	**3**	366.9	140.8	**3**	413.6	158.8	**3**	460.3	176.7	**3**	506.9	194.6	**3**	553.6	212.5
4	321.2	123.3	**4**	367.8	141.2	**4**	414.5	159.1	**4**	461.2	177.0	**4**	507.9	195.0	**4**	554.5	212.9
5	322.1	123.6	**5**	368.8	141.6	**5**	415.4	159.5	**5**	462.1	177.4	**5**	508.8	195.3	**5**	555.5	213.2
6	323.0	124.0	**6**	369.7	141.9	**6**	416.4	159.8	**6**	463.1	177.8	**6**	509.7	195.7	**6**	556.4	213.6
7	324.0	124.4	**7**	370.6	142.3	**7**	417.3	160.2	**7**	464.0	178.1	**7**	510.7	196.0	**7**	557.3	213.9
8	324.9	124.7	**8**	371.6	142.6	**8**	418.2	160.5	**8**	464.9	178.5	**8**	511.6	196.4	**8**	558.3	214.3
9	325.8	125.1	**9**	372.5	143.0	**9**	419.2	160.9	**9**	465.9	178.8	**9**	512.5	196.7	**9**	559.2	214.7
D	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ
ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap

R

359 338° 315

181 202 225

TABELA 1

TÁBUAS DE CARTEAÇÃO

R ou φm

001 022 045

179 158 135

ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap	
D	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap
0	0.0	0.0	**50**	46.4	18.7	**100**	92.7	37.5	**150**	139.1	56.2	**200**	185.4	74.9	**250**	231.8	93.7
1	0.9	0.4	**1**	47.3	19.1	**1**	93.6	37.8	**1**	140.0	56.6	**1**	186.4	75.3	**1**	232.7	94.0
2	1.9	0.7	**2**	48.2	19.5	**2**	94.6	38.2	**2**	140.9	56.9	**2**	187.3	75.7	**2**	233.7	94.4
3	2.8	1.1	**3**	49.1	19.9	**3**	95.5	38.6	**3**	141.9	57.3	**3**	188.2	76.0	**3**	234.6	94.8
4	3.7	1.5	**4**	50.1	20.2	**4**	96.4	39.0	**4**	142.8	57.7	**4**	189.1	76.4	**4**	235.5	95.2
5	4.6	1.9	**5**	51.0	20.6	**5**	97.4	39.3	**5**	143.7	58.1	**5**	190.1	76.8	**5**	236.4	95.5
6	5.6	2.2	**6**	51.9	21.0	**6**	98.3	39.7	**6**	144.6	58.4	**6**	191.0	77.2	**6**	237.4	95.9
7	6.5	2.6	**7**	52.8	21.4	**7**	99.2	40.1	**7**	145.6	58.8	**7**	191.9	77.5	**7**	238.3	96.3
8	7.4	3.0	**8**	53.8	21.7	**8**	100.1	40.5	**8**	146.5	59.2	**8**	192.9	77.9	**8**	239.2	96.6
9	8.3	3.4	**9**	54.7	22.1	**9**	101.1	40.8	**9**	147.4	59.6	**9**	193.8	78.3	**9**	240.1	97.0
10	9.3	3.7	**60**	55.6	22.5	**110**	102.0	41.2	**160**	148.3	59.9	**210**	194.7	78.7	**260**	241.1	97.4
1	10.2	4.1	**1**	56.6	22.9	**1**	102.9	41.6	**1**	149.3	60.3	**1**	195.6	79.0	**1**	242.0	97.8
2	11.1	4.5	**2**	57.5	23.2	**2**	103.8	42.0	**2**	150.2	60.7	**2**	196.6	79.4	**2**	242.9	98.1
3	12.1	4.9	**3**	58.4	23.6	**3**	104.8	42.3	**3**	151.1	61.1	**3**	197.5	79.8	**3**	243.8	98.5
4	13.0	5.2	**4**	59.3	24.0	**4**	105.7	42.7	**4**	152.1	61.4	**4**	198.4	80.2	**4**	244.8	98.9
5	13.9	5.6	**5**	60.3	24.3	**5**	106.6	43.1	**5**	153.0	61.8	**5**	199.3	80.5	**5**	245.7	99.3
6	14.8	6.0	**6**	61.2	24.7	**6**	107.6	43.5	**6**	153.9	62.2	**6**	200.3	80.9	**6**	246.6	99.6
7	15.8	6.4	**7**	62.1	25.1	**7**	108.5	43.8	**7**	154.8	62.6	**7**	201.2	81.3	**7**	247.6	100.0
8	16.7	6.7	**8**	63.0	25.5	**8**	109.4	44.2	**8**	155.8	62.9	**8**	202.1	81.7	**8**	248.5	100.4
9	17.6	7.1	**9**	64.0	25.8	**9**	110.3	44.6	**9**	156.7	63.3	**9**	203.1	82.0	**9**	249.4	100.8
20	18.5	7.5	**70**	64.9	26.2	**120**	111.3	45.0	**170**	157.6	63.7	**220**	204.0	82.4	**270**	250.3	101.1
1	19.5	7.9	**1**	65.8	26.6	**1**	112.2	45.3	**1**	158.5	64.1	**1**	204.9	82.8	**1**	251.3	101.5
2	20.4	8.2	**2**	66.8	27.0	**2**	113.1	45.7	**2**	159.5	64.4	**2**	205.8	83.2	**2**	252.2	101.9
3	21.3	8.6	**3**	67.7	27.3	**3**	114.0	46.1	**3**	160.4	64.8	**3**	206.8	83.5	**3**	253.1	102.3
4	22.3	9.0	**4**	68.6	27.7	**4**	115.0	46.5	**4**	161.3	65.2	**4**	207.7	83.9	**4**	254.0	102.6
5	23.2	9.4	**5**	69.5	28.1	**5**	115.9	46.8	**5**	162.3	65.6	**5**	208.6	84.3	**5**	255.0	103.0
6	24.1	9.7	**6**	70.5	28.5	**6**	116.8	47.2	**6**	163.2	65.9	**6**	209.5	84.7	**6**	255.9	103.4
7	25.0	10.1	**7**	71.4	28.8	**7**	117.8	47.6	**7**	164.1	66.3	**7**	210.5	85.0	**7**	256.8	103.8
8	26.0	10.5	**8**	72.3	29.2	**8**	118.7	47.9	**8**	165.0	66.7	**8**	211.4	85.4	**8**	257.8	104.1
9	26.9	10.9	**9**	73.2	29.6	**9**	119.6	48.3	**9**	166.0	67.1	**9**	212.3	85.8	**9**	258.7	104.5
30	27.8	11.2	**80**	74.2	30.0	**130**	120.5	48.7	**180**	166.9	67.4	**230**	213.3	86.2	**280**	259.6	104.9
1	28.7	11.6	**1**	75.1	30.3	**1**	121.5	49.1	**1**	167.8	67.8	**1**	214.2	86.5	**1**	260.5	105.3
2	29.7	12.0	**2**	76.0	30.7	**2**	122.4	49.4	**2**	168.7	68.2	**2**	215.1	86.9	**2**	261.5	105.6
3	30.6	12.4	**3**	77.0	31.1	**3**	123.3	49.8	**3**	169.7	68.6	**3**	216.0	87.3	**3**	262.4	106.0
4	31.5	12.7	**4**	77.9	31.5	**4**	124.2	50.2	**4**	170.6	68.9	**4**	217.0	87.7	**4**	263.3	106.4
5	32.5	13.1	**5**	78.8	31.8	**5**	125.2	50.6	**5**	171.5	69.3	**5**	217.9	88.0	**5**	264.2	106.8
6	33.4	13.5	**6**	79.7	32.2	**6**	126.1	50.9	**6**	172.5	69.7	**6**	218.8	88.4	**6**	265.2	107.1
7	34.3	13.9	**7**	80.7	32.6	**7**	127.0	51.3	**7**	173.4	70.1	**7**	219.7	88.8	**7**	266.1	107.5
8	35.2	14.2	**8**	81.6	33.0	**8**	128.0	51.7	**8**	174.3	70.4	**8**	220.7	89.2	**8**	267.0	107.9
9	36.2	14.6	**9**	82.5	33.3	**9**	128.9	52.1	**9**	175.2	70.8	**9**	221.6	89.5	**9**	268.0	108.3
40	37.1	15.0	**90**	83.4	33.7	**140**	129.8	52.4	**190**	176.2	71.2	**240**	222.5	89.9	**290**	268.9	108.6
1	38.0	15.4	**1**	84.4	34.1	**1**	130.7	52.8	**1**	177.1	71.5	**1**	223.5	90.3	**1**	269.8	109.0
2	38.9	15.7	**2**	85.3	34.5	**2**	131.7	53.2	**2**	178.0	71.9	**2**	224.4	90.7	**2**	270.7	109.4
3	39.9	16.1	**3**	86.2	34.8	**3**	132.6	53.6	**3**	178.9	72.3	**3**	225.3	91.0	**3**	271.7	109.8
4	40.8	16.5	**4**	87.2	35.2	**4**	133.5	53.9	**4**	179.9	72.7	**4**	226.2	91.4	**4**	272.6	110.1
5	41.7	16.9	**5**	88.1	35.6	**5**	134.4	54.3	**5**	180.8	73.0	**5**	227.2	91.8	**5**	273.5	110.5
6	42.7	17.2	**6**	89.0	36.0	**6**	135.4	54.7	**6**	181.7	73.4	**6**	228.1	92.2	**6**	274.4	110.9
7	43.6	17.6	**7**	89.9	36.3	**7**	136.3	55.1	**7**	182.7	73.8	**7**	229.0	92.5	**7**	275.4	111.3
8	44.5	18.0	**8**	90.9	36.7	**8**	137.2	55.4	**8**	183.6	74.2	**8**	229.9	92.9	**8**	276.3	111.6
9	45.4	18.4	**9**	91.8	37.1	**9**	138.2	55.8	**9**	184.5	74.5	**9**	230.9	93.3	**9**	277.2	112.0
D	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ
ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap

271 292 315

269 248 225

R

089 068° 045

091 112 135

R ou φm

ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap	
D	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap
300	278.2	112.4	**350**	324.5	131.1	**400**	370.9	149.8	**450**	417.2	168.6	**500**	463.6	187.3	**550**	510.0	206.0
1	279.1	112.8	**1**	325.4	131.5	**1**	371.8	150.2	**1**	418.2	168.9	**1**	464.5	187.7	**1**	510.9	206.4
2	280.0	113.1	**2**	326.4	131.9	**2**	372.7	150.6	**2**	419.1	169.3	**2**	465.4	188.1	**2**	511.8	206.8
3	280.9	113.5	**3**	327.3	132.2	**3**	373.7	151.0	**3**	420.0	169.7	**3**	466.4	188.4	**3**	512.7	207.2
4	281.9	113.9	**4**	328.2	132.6	**4**	374.6	151.3	**4**	420.9	170.1	**4**	467.3	188.8	**4**	513.7	207.5
5	282.8	114.3	**5**	329.2	133.0	**5**	375.5	151.7	**5**	421.9	170.4	**5**	468.2	189.2	**5**	514.6	207.9
6	283.7	114.6	**6**	330.1	133.4	**6**	376.4	152.1	**6**	422.8	170.8	**6**	469.2	189.6	**6**	515.5	208.3
7	284.6	115.0	**7**	331.0	133.7	**7**	377.4	152.5	**7**	423.7	171.2	**7**	470.1	189.9	**7**	516.4	208.7
8	285.6	115.4	**8**	331.9	134.1	**8**	378.3	152.8	**8**	424.7	171.6	**8**	471.0	190.3	**8**	517.4	209.0
9	286.5	115.8	**9**	332.9	134.5	**9**	379.2	153.2	**9**	425.6	171.9	**9**	471.9	190.7	**9**	518.3	209.4
310	287.4	116.1	**360**	333.8	134.9	**410**	380.1	153.6	**460**	426.5	172.3	**510**	472.9	191.0	**560**	519.2	209.8
1	288.4	116.5	**1**	334.7	135.2	**1**	381.1	154.0	**1**	427.4	172.7	**1**	473.8	191.4	**1**	520.2	210.2
2	289.3	116.9	**2**	335.6	135.6	**2**	382.0	154.3	**2**	428.4	173.1	**2**	474.7	191.8	**2**	521.1	210.5
3	290.2	117.3	**3**	336.6	136.0	**3**	382.9	154.7	**3**	429.3	173.4	**3**	475.6	192.2	**3**	522.0	210.9
4	291.1	117.6	**4**	337.5	136.4	**4**	383.9	155.1	**4**	430.2	173.8	**4**	476.6	192.5	**4**	522.9	211.3
5	292.1	118.0	**5**	338.4	136.7	**5**	384.8	155.5	**5**	431.1	174.2	**5**	477.5	192.9	**5**	523.9	211.7
6	293.0	118.4	**6**	339.3	137.1	**6**	385.7	155.8	**6**	432.1	174.6	**6**	478.4	193.3	**6**	524.8	212.0
7	293.9	118.8	**7**	340.3	137.5	**7**	386.6	156.2	**7**	433.0	174.9	**7**	479.4	193.7	**7**	525.7	212.4
8	294.8	119.1	**8**	341.2	137.9	**8**	387.6	156.6	**8**	433.9	175.3	**8**	480.3	194.0	**8**	526.6	212.8
9	295.8	119.5	**9**	342.1	138.2	**9**	388.5	157.0	**9**	434.8	175.7	**9**	481.2	194.4	**9**	527.6	213.2
320	296.7	119.9	**370**	343.1	138.6	**420**	389.4	157.3	**470**	435.8	176.1	**520**	482.1	194.8	**570**	528.5	213.5
1	297.6	120.2	**1**	344.0	139.0	**1**	390.3	157.7	**1**	436.7	176.4	**1**	483.1	195.2	**1**	529.4	213.9
2	298.6	120.6	**2**	344.9	139.4	**2**	391.3	158.1	**2**	437.6	176.8	**2**	484.0	195.5	**2**	530.3	214.3
3	299.5	121.0	**3**	345.8	139.7	**3**	392.2	158.5	**3**	438.6	177.2	**3**	484.9	195.9	**3**	531.3	214.6
4	300.4	121.4	**4**	346.8	140.1	**4**	393.1	158.8	**4**	439.5	177.6	**4**	485.8	196.3	**4**	532.2	215.0
5	301.3	121.7	**5**	347.7	140.5	**5**	394.1	159.2	**5**	440.4	177.9	**5**	486.8	196.7	**5**	533.1	215.4
6	302.3	122.1	**6**	348.6	140.9	**6**	395.0	159.6	**6**	441.3	178.3	**6**	487.7	197.0	**6**	534.1	215.8
7	303.2	122.5	**7**	349.5	141.2	**7**	395.9	160.0	**7**	442.3	178.7	**7**	488.6	197.4	**7**	535.0	216.1
8	304.1	122.9	**8**	350.5	141.6	**8**	396.8	160.3	**8**	443.2	179.1	**8**	489.6	197.8	**8**	535.9	216.5
9	305.0	123.2	**9**	351.4	142.0	**9**	397.8	160.7	**9**	444.1	179.4	**9**	490.5	198.2	**9**	536.8	216.9
330	306.0	123.6	**380**	352.3	142.4	**430**	398.7	161.1	**480**	445.0	179.8	**530**	491.4	198.5	**580**	537.8	217.3
1	306.9	124.0	**1**	353.3	142.7	**1**	399.6	161.5	**1**	446.0	180.2	**1**	492.3	198.9	**1**	538.7	217.6
2	307.8	124.4	**2**	354.2	143.1	**2**	400.5	161.8	**2**	446.9	180.6	**2**	493.3	199.3	**2**	539.6	218.0
3	308.8	124.7	**3**	355.1	143.5	**3**	401.5	162.2	**3**	447.8	180.9	**3**	494.2	199.7	**3**	540.5	218.4
4	309.7	125.1	**4**	356.0	143.8	**4**	402.4	162.6	**4**	448.8	181.3	**4**	495.1	200.0	**4**	541.5	218.8
5	310.6	125.5	**5**	357.0	144.2	**5**	403.3	163.0	**5**	449.7	181.7	**5**	496.0	200.4	**5**	542.4	219.1
6	311.5	125.9	**6**	357.9	144.6	**6**	404.3	163.3	**6**	450.6	182.1	**6**	497.0	200.8	**6**	543.3	219.5
7	312.5	126.2	**7**	358.8	145.0	**7**	405.2	163.7	**7**	451.5	182.4	**7**	497.9	201.2	**7**	544.3	219.9
8	313.4	126.6	**8**	359.7	145.3	**8**	406.1	164.1	**8**	452.5	182.8	**8**	498.8	201.5	**8**	545.2	220.3
9	314.3	127.0	**9**	360.7	145.7	**9**	407.0	164.5	**9**	453.4	183.2	**9**	499.8	201.9	**9**	546.1	220.6
340	315.2	127.4	**390**	361.6	146.1	**440**	408.0	164.8	**490**	454.3	183.6	**540**	500.7	202.3	**590**	547.0	221.0
1	316.2	127.7	**1**	362.5	146.5	**1**	408.9	165.2	**1**	455.2	183.9	**1**	501.6	202.7	**1**	548.0	221.4
2	317.1	128.1	**2**	363.5	146.8	**2**	409.8	165.6	**2**	456.2	184.3	**2**	502.5	203.0	**2**	548.9	221.8
3	318.0	128.5	**3**	364.4	147.2	**3**	410.7	166.0	**3**	457.1	184.7	**3**	503.5	203.4	**3**	549.8	222.1
4	319.0	128.9	**4**	365.3	147.6	**4**	411.7	166.3	**4**	458.0	185.1	**4**	504.4	203.8	**4**	550.7	222.5
5	319.9	129.2	**5**	366.2	148.0	**5**	412.6	166.7	**5**	459.0	185.4	**5**	505.3	204.2	**5**	551.7	222.9
6	320.8	129.6	**6**	367.2	148.3	**6**	413.5	167.1	**6**	459.9	185.8	**6**	506.2	204.5	**6**	552.6	223.3
7	321.7	130.0	**7**	368.1	148.7	**7**	414.5	167.4	**7**	460.8	186.2	**7**	507.2	204.9	**7**	553.5	223.6
8	322.7	130.4	**8**	369.0	149.1	**8**	415.4	167.8	**8**	461.7	186.6	**8**	508.1	205.3	**8**	554.5	224.0
9	323.6	130.7	**9**	369.9	149.5	**9**	416.3	168.2	**9**	462.7	186.9	**9**	509.0	205.7	**9**	555.4	224.4
D	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ
ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap

TABELA 1

TÁBUAS DE CARTEAÇÃO

ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap	
D	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap
0	0.0	0.0	**50**	46.0	19.5	**100**	92.1	39.1	**150**	138.1	58.6	**200**	184.1	78.1	**250**	230.1	97.7
1	0.9	0.4	**1**	46.9	19.9	**1**	93.0	39.5	**1**	139.0	59.0	**1**	185.0	78.5	**1**	231.0	98.1
2	1.8	0.8	**2**	47.9	20.3	**2**	93.9	39.9	**2**	139.9	59.4	**2**	185.9	78.9	**2**	232.0	98.5
3	2.8	1.2	**3**	48.8	20.7	**3**	94.8	40.2	**3**	140.8	59.8	**3**	186.9	79.3	**3**	232.9	98.9
4	3.7	1.6	**4**	49.7	21.1	**4**	95.7	40.6	**4**	141.8	60.2	**4**	187.8	79.7	**4**	233.8	99.2
5	4.6	2.0	**5**	50.6	21.5	**5**	96.7	41.0	**5**	142.7	60.6	**5**	188.7	80.1	**5**	234.7	99.6
6	5.5	2.3	**6**	51.5	21.9	**6**	97.6	41.4	**6**	143.6	61.0	**6**	189.6	80.5	**6**	235.6	100.0
7	6.4	2.7	**7**	52.5	22.3	**7**	98.5	41.8	**7**	144.5	61.3	**7**	190.5	80.9	**7**	236.6	100.4
8	7.4	3.1	**8**	53.4	22.7	**8**	99.4	42.2	**8**	145.4	61.7	**8**	191.5	81.3	**8**	237.5	100.8
9	8.3	3.5	**9**	54.3	23.1	**9**	100.3	42.6	**9**	146.4	62.1	**9**	192.4	81.7	**9**	238.4	101.2
10	9.2	3.9	**60**	55.2	23.4	**110**	101.3	43.0	**160**	147.3	62.5	**210**	193.3	82.1	**260**	239.3	101.6
1	10.1	4.3	**1**	56.2	23.8	**1**	102.2	43.4	**1**	148.2	62.9	**1**	194.2	82.4	**1**	240.3	102.0
2	11.0	4.7	**2**	57.1	24.2	**2**	103.1	43.8	**2**	149.1	63.3	**2**	195.1	82.8	**2**	241.2	102.4
3	12.0	5.1	**3**	58.0	24.6	**3**	104.0	44.2	**3**	150.0	63.7	**3**	196.1	83.2	**3**	242.1	102.8
4	12.9	5.5	**4**	58.9	25.0	**4**	104.9	44.5	**4**	151.0	64.1	**4**	197.0	83.6	**4**	243.0	103.2
5	13.8	5.9	**5**	59.8	25.4	**5**	105.9	44.9	**5**	151.9	64.5	**5**	197.9	84.0	**5**	243.9	103.5
6	14.7	6.3	**6**	60.8	25.8	**6**	106.8	45.3	**6**	152.8	64.9	**6**	198.8	84.4	**6**	244.9	103.9
7	15.6	6.6	**7**	61.7	26.2	**7**	107.7	45.7	**7**	153.7	65.3	**7**	199.7	84.8	**7**	245.8	104.3
8	16.6	7.0	**8**	62.6	26.6	**8**	108.6	46.1	**8**	154.6	65.6	**8**	200.7	85.2	**8**	246.7	104.7
9	17.5	7.4	**9**	63.5	27.0	**9**	109.5	46.5	**9**	155.6	66.0	**9**	201.6	85.6	**9**	247.6	105.1
20	18.4	7.8	**70**	64.4	27.4	**120**	110.5	46.9	**170**	156.5	66.4	**220**	202.5	86.0	**270**	248.5	105.5
1	19.3	8.2	**1**	65.4	27.7	**1**	111.4	47.3	**1**	157.4	66.8	**1**	203.4	86.4	**1**	249.5	105.9
2	20.3	8.6	**2**	66.3	28.1	**2**	112.3	47.7	**2**	158.3	67.2	**2**	204.4	86.7	**2**	250.4	106.3
3	21.2	9.0	**3**	67.2	28.5	**3**	113.2	48.1	**3**	159.2	67.6	**3**	205.3	87.1	**3**	251.3	106.7
4	22.1	9.4	**4**	68.1	28.9	**4**	114.1	48.5	**4**	160.2	68.0	**4**	206.2	87.5	**4**	252.2	107.1
5	23.0	9.8	**5**	69.0	29.3	**5**	115.1	48.8	**5**	161.1	68.4	**5**	207.1	87.9	**5**	253.1	107.5
6	23.9	10.2	**6**	70.0	29.7	**6**	116.0	49.2	**6**	162.0	68.8	**6**	208.0	88.3	**6**	254.1	107.8
7	24.9	10.5	**7**	70.9	30.1	**7**	116.9	49.6	**7**	162.9	69.2	**7**	209.0	88.7	**7**	255.0	108.2
8	25.8	10.9	**8**	71.8	30.5	**8**	117.8	50.0	**8**	163.8	69.6	**8**	209.9	89.1	**8**	255.9	108.6
9	26.7	11.3	**9**	72.7	30.9	**9**	118.7	50.4	**9**	164.8	69.9	**9**	210.8	89.5	**9**	256.8	109.0
30	27.6	11.7	**80**	73.6	31.3	**130**	119.7	50.8	**180**	165.7	70.3	**230**	211.7	89.9	**280**	257.7	109.4
1	28.5	12.1	**1**	74.6	31.6	**1**	120.6	51.2	**1**	166.6	70.7	**1**	212.6	90.3	**1**	258.7	109.8
2	29.5	12.5	**2**	75.5	32.0	**2**	121.5	51.6	**2**	167.5	71.1	**2**	213.6	90.6	**2**	259.6	110.2
3	30.4	12.9	**3**	76.4	32.4	**3**	122.4	52.0	**3**	168.5	71.5	**3**	214.5	91.0	**3**	260.5	110.6
4	31.3	13.3	**4**	77.3	32.8	**4**	123.3	52.4	**4**	169.4	71.9	**4**	215.4	91.4	**4**	261.4	111.0
5	32.2	13.7	**5**	78.2	33.2	**5**	124.3	52.7	**5**	170.3	72.3	**5**	216.3	91.8	**5**	262.3	111.4
6	33.1	14.1	**6**	79.2	33.6	**6**	125.2	53.1	**6**	171.2	72.7	**6**	217.2	92.2	**6**	263.3	111.7
7	34.1	14.5	**7**	80.1	34.0	**7**	126.1	53.5	**7**	172.1	73.1	**7**	218.2	92.6	**7**	264.2	112.1
8	35.0	14.8	**8**	81.0	34.4	**8**	127.0	53.9	**8**	173.1	73.5	**8**	219.1	93.0	**8**	265.1	112.5
9	35.9	15.2	**9**	81.9	34.8	**9**	128.0	54.3	**9**	174.0	73.8	**9**	220.0	93.4	**9**	266.0	112.9
40	36.8	15.6	**90**	82.8	35.2	**140**	128.9	54.7	**190**	174.9	74.2	**240**	220.9	93.8	**290**	266.9	113.3
1	37.7	16.0	**1**	83.8	35.6	**1**	129.8	55.1	**1**	175.8	74.6	**1**	221.8	94.2	**1**	267.9	113.7
2	38.7	16.4	**2**	84.7	35.9	**2**	130.7	55.5	**2**	176.7	75.0	**2**	222.8	94.6	**2**	268.8	114.1
3	39.6	16.8	**3**	85.6	36.3	**3**	131.6	55.9	**3**	177.7	75.4	**3**	223.7	94.9	**3**	269.7	114.5
4	40.5	17.2	**4**	86.5	36.7	**4**	132.6	56.3	**4**	178.6	75.8	**4**	224.6	95.3	**4**	270.6	114.9
5	41.4	17.6	**5**	87.4	37.1	**5**	133.5	56.7	**5**	179.5	76.2	**5**	225.5	95.7	**5**	271.5	115.3
6	42.3	18.0	**6**	88.4	37.5	**6**	134.4	57.0	**6**	180.4	76.6	**6**	226.4	96.1	**6**	272.5	115.7
7	43.3	18.4	**7**	89.3	37.9	**7**	135.3	57.4	**7**	181.3	77.0	**7**	227.4	96.5	**7**	273.4	116.0
8	44.2	18.8	**8**	90.2	38.3	**8**	136.2	57.8	**8**	182.3	77.4	**8**	228.3	96.9	**8**	274.3	116.4
9	45.1	19.1	**9**	91.1	38.7	**9**	137.2	58.2	**9**	183.2	77.8	**9**	229.2	97.3	**9**	275.2	116.8
D	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ
ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap

ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap	
D	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap
300	276.2	117.2	**350**	322.2	136.8	**400**	368.2	156.3	**450**	414.2	175.8	**500**	460.3	195.4	**550**	506.3	214.9
1	277.1	117.6	**1**	323.1	137.1	**1**	369.1	156.7	**1**	415.1	176.2	**1**	461.2	195.8	**1**	507.2	215.3
2	278.0	118.0	**2**	324.0	137.5	**2**	370.0	157.1	**2**	416.1	176.6	**2**	462.1	196.1	**2**	508.1	215.7
3	278.9	118.4	**3**	324.9	137.9	**3**	371.0	157.5	**3**	417.0	177.0	**3**	463.0	196.5	**3**	509.0	216.1
4	279.8	118.8	**4**	325.9	138.3	**4**	371.9	157.9	**4**	417.9	177.4	**4**	463.9	196.9	**4**	510.0	216.5
5	280.8	119.2	**5**	326.8	138.7	**5**	372.8	158.2	**5**	418.8	177.8	**5**	464.9	197.3	**5**	510.9	216.9
6	281.7	119.6	**6**	327.7	139.1	**6**	373.7	158.6	**6**	419.8	178.2	**6**	465.8	197.7	**6**	511.8	217.2
7	282.6	120.0	**7**	328.6	139.5	**7**	374.6	159.0	**7**	420.7	178.6	**7**	466.7	198.1	**7**	512.7	217.6
8	283.5	120.3	**8**	329.5	139.9	**8**	375.6	159.4	**8**	421.6	179.0	**8**	467.6	198.5	**8**	513.6	218.0
9	284.4	120.7	**9**	330.5	140.3	**9**	376.5	159.8	**9**	422.5	179.3	**9**	468.5	198.9	**9**	514.6	218.4
310	285.4	121.1	**360**	331.4	140.7	**410**	377.4	160.2	**460**	423.4	179.7	**510**	469.5	199.3	**560**	515.5	218.8
1	286.3	121.5	**1**	332.3	141.1	**1**	378.3	160.6	**1**	424.4	180.1	**1**	470.4	199.7	**1**	516.4	219.2
2	287.2	121.9	**2**	333.2	141.4	**2**	379.2	161.0	**2**	425.3	180.5	**2**	471.3	200.1	**2**	517.3	219.6
3	288.1	122.3	**3**	334.1	141.8	**3**	380.2	161.4	**3**	426.2	180.9	**3**	472.2	200.4	**3**	518.2	220.0
4	289.0	122.7	**4**	335.1	142.2	**4**	381.1	161.8	**4**	427.1	181.3	**4**	473.1	200.8	**4**	519.2	220.4
5	290.0	123.1	**5**	336.0	142.6	**5**	382.0	162.2	**5**	428.0	181.7	**5**	474.1	201.2	**5**	520.1	220.8
6	290.9	123.5	**6**	336.9	143.0	**6**	382.9	162.5	**6**	429.0	182.1	**6**	475.0	201.6	**6**	521.0	221.2
7	291.8	123.9	**7**	337.8	143.4	**7**	383.9	162.9	**7**	429.9	182.5	**7**	475.9	202.0	**7**	521.9	221.5
8	292.7	124.3	**8**	338.7	143.8	**8**	384.8	163.3	**8**	430.8	182.9	**8**	476.8	202.4	**8**	522.8	221.9
9	293.6	124.6	**9**	339.7	144.2	**9**	385.7	163.7	**9**	431.7	183.3	**9**	477.7	202.8	**9**	523.8	222.3
320	294.6	125.0	**370**	340.6	144.6	**420**	386.6	164.1	**470**	432.6	183.6	**520**	478.7	203.2	**570**	524.7	222.7
1	295.5	125.4	**1**	341.5	145.0	**1**	387.5	164.5	**1**	433.6	184.0	**1**	479.6	203.6	**1**	525.6	223.1
2	296.4	125.8	**2**	342.4	145.4	**2**	388.5	164.9	**2**	434.5	184.4	**2**	480.5	204.0	**2**	526.5	223.5
3	297.3	126.2	**3**	343.3	145.7	**3**	389.4	165.3	**3**	435.4	184.8	**3**	481.4	204.4	**3**	527.4	223.9
4	298.2	126.6	**4**	344.3	146.1	**4**	390.3	165.7	**4**	436.3	185.2	**4**	482.3	204.7	**4**	528.4	224.3
5	299.2	127.0	**5**	345.2	146.5	**5**	391.2	166.1	**5**	437.2	185.6	**5**	483.3	205.1	**5**	529.3	224.7
6	300.1	127.4	**6**	346.1	146.9	**6**	392.1	166.5	**6**	438.2	186.0	**6**	484.2	205.5	**6**	530.2	225.1
7	301.0	127.8	**7**	347.0	147.3	**7**	393.1	166.8	**7**	439.1	186.4	**7**	485.1	205.9	**7**	531.1	225.5
8	301.9	128.2	**8**	348.0	147.7	**8**	394.0	167.2	**8**	440.0	186.8	**8**	486.0	206.3	**8**	532.1	225.8
9	302.8	128.6	**9**	348.9	148.1	**9**	394.9	167.6	**9**	440.9	187.2	**9**	486.9	206.7	**9**	533.0	226.2
330	303.8	128.9	**380**	349.8	148.5	**430**	395.8	168.0	**480**	441.8	187.6	**530**	487.9	207.1	**580**	533.9	226.6
1	304.7	129.3	**1**	350.7	148.9	**1**	396.7	168.4	**1**	442.8	187.9	**1**	488.8	207.5	**1**	534.8	227.0
2	305.6	129.7	**2**	351.6	149.3	**2**	397.7	168.8	**2**	443.7	188.3	**2**	489.7	207.9	**2**	535.7	227.4
3	306.5	130.1	**3**	352.6	149.6	**3**	398.6	169.2	**3**	444.6	188.7	**3**	490.6	208.3	**3**	536.7	227.8
4	307.4	130.5	**4**	353.5	150.0	**4**	399.5	169.6	**4**	445.5	189.1	**4**	491.5	208.7	**4**	537.6	228.2
5	308.4	130.9	**5**	354.4	150.4	**5**	400.4	170.0	**5**	446.4	189.5	**5**	492.5	209.0	**5**	538.5	228.6
6	309.3	131.3	**6**	355.3	150.8	**6**	401.3	170.4	**6**	447.4	189.9	**6**	493.4	209.4	**6**	539.4	229.0
7	310.2	131.7	**7**	356.2	151.2	**7**	402.3	170.7	**7**	448.3	190.3	**7**	494.3	209.8	**7**	540.3	229.4
8	311.1	132.1	**8**	357.2	151.6	**8**	403.2	171.1	**8**	449.2	190.7	**8**	495.2	210.2	**8**	541.3	229.7
9	312.1	132.5	**9**	358.1	152.0	**9**	404.1	171.5	**9**	450.1	191.1	**9**	496.2	210.6	**9**	542.2	230.1
340	313.0	132.8	**390**	359.0	152.4	**440**	405.0	171.9	**490**	451.0	191.5	**540**	497.1	211.0	**590**	543.1	230.5
1	313.9	133.2	**1**	359.9	152.8	**1**	405.9	172.3	**1**	452.0	191.8	**1**	498.0	211.4	**1**	544.0	230.9
2	314.8	133.6	**2**	360.8	153.2	**2**	406.9	172.7	**2**	452.9	192.2	**2**	498.9	211.8	**2**	544.9	231.3
3	315.7	134.0	**3**	361.8	153.6	**3**	407.8	173.1	**3**	453.8	192.6	**3**	499.8	212.2	**3**	545.9	231.7
4	316.7	134.4	**4**	362.7	153.9	**4**	408.7	173.5	**4**	454.7	193.0	**4**	500.8	212.6	**4**	546.8	232.1
5	317.6	134.8	**5**	363.6	154.3	**5**	409.6	173.9	**5**	455.6	193.4	**5**	501.7	212.9	**5**	547.7	232.5
6	318.5	135.2	**6**	364.5	154.7	**6**	410.5	174.3	**6**	456.6	193.8	**6**	502.6	213.3	**6**	548.6	232.9
7	319.4	135.6	**7**	365.4	155.1	**7**	411.5	174.7	**7**	457.5	194.2	**7**	503.5	213.7	**7**	549.5	233.3
8	320.3	136.0	**8**	366.4	155.5	**8**	412.4	175.0	**8**	458.4	194.6	**8**	504.4	214.1	**8**	550.5	233.7
9	321.3	136.4	**9**	367.3	155.9	**9**	413.3	175.4	**9**	459.3	195.0	**9**	505.4	214.5	**9**	551.4	234.0
D	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ
ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap

ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap	
D	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap
0	0.0	0.0	**50**	45.7	20.3	**100**	91.4	40.7	**150**	137.0	61.0	**200**	182.7	81.3	**250**	228.4	101.7
1	0.9	0.4	**1**	46.6	20.7	**1**	92.3	41.1	**1**	137.9	61.4	**1**	183.6	81.8	**1**	229.3	102.1
2	1.8	0.8	**2**	47.5	21.2	**2**	93.2	41.5	**2**	138.9	61.8	**2**	184.5	82.2	**2**	230.2	102.5
3	2.7	1.2	**3**	48.4	21.6	**3**	94.1	41.9	**3**	139.8	62.2	**3**	185.4	82.6	**3**	231.1	102.9
4	3.7	1.6	**4**	49.3	22.0	**4**	95.0	42.3	**4**	140.7	62.6	**4**	186.4	83.0	**4**	232.0	103.3
5	4.6	2.0	**5**	50.2	22.4	**5**	95.9	42.7	**5**	141.6	63.0	**5**	187.3	83.4	**5**	233.0	103.7
6	5.5	2.4	**6**	51.2	22.8	**6**	96.8	43.1	**6**	142.5	63.5	**6**	188.2	83.8	**6**	233.9	104.1
7	6.4	2.8	**7**	52.1	23.2	**7**	97.7	43.5	**7**	143.4	63.9	**7**	189.1	84.2	**7**	234.8	104.5
8	7.3	3.3	**8**	53.0	23.6	**8**	98.7	43.9	**8**	144.3	64.3	**8**	190.0	84.6	**8**	235.7	104.9
9	8.2	3.7	**9**	53.9	24.0	**9**	99.6	44.3	**9**	145.3	64.7	**9**	190.9	85.0	**9**	236.6	105.3
10	9.1	4.1	**60**	54.8	24.4	**110**	100.5	44.7	**160**	146.2	65.1	**210**	191.8	85.4	**260**	237.5	105.8
1	10.0	4.5	**1**	55.7	24.8	**1**	101.4	45.1	**1**	147.1	65.5	**1**	192.8	85.8	**1**	238.4	106.2
2	11.0	4.9	**2**	56.6	25.2	**2**	102.3	45.6	**2**	148.0	65.9	**2**	193.7	86.2	**2**	239.3	106.6
3	11.9	5.3	**3**	57.6	25.6	**3**	103.2	46.0	**3**	148.9	66.3	**3**	194.6	86.6	**3**	240.3	107.0
4	12.8	5.7	**4**	58.5	26.0	**4**	104.1	46.4	**4**	149.8	66.7	**4**	195.5	87.0	**4**	241.2	107.4
5	13.7	6.1	**5**	59.4	26.4	**5**	105.1	46.8	**5**	150.7	67.1	**5**	196.4	87.4	**5**	242.1	107.8
6	14.6	6.5	**6**	60.3	26.8	**6**	106.0	47.2	**6**	151.6	67.5	**6**	197.3	87.9	**6**	243.0	108.2
7	15.5	6.9	**7**	61.2	27.3	**7**	106.9	47.6	**7**	152.6	67.9	**7**	198.2	88.3	**7**	243.9	108.6
8	16.4	7.3	**8**	62.1	27.7	**8**	107.8	48.0	**8**	153.5	68.3	**8**	199.2	88.7	**8**	244.8	109.0
9	17.4	7.7	**9**	63.0	28.1	**9**	108.7	48.4	**9**	154.4	68.7	**9**	200.1	89.1	**9**	245.7	109.4
20	18.3	8.1	**70**	63.9	28.5	**120**	109.6	48.8	**170**	155.3	69.1	**220**	201.0	89.5	**270**	246.7	109.8
1	19.2	8.5	**1**	64.9	28.9	**1**	110.5	49.2	**1**	156.2	69.6	**1**	201.9	89.9	**1**	247.6	110.2
2	20.1	8.9	**2**	65.8	29.3	**2**	111.5	49.6	**2**	157.1	70.0	**2**	202.8	90.3	**2**	248.5	110.6
3	21.0	9.4	**3**	66.7	29.7	**3**	112.4	50.0	**3**	158.0	70.4	**3**	203.7	90.7	**3**	249.4	111.0
4	21.9	9.8	**4**	67.6	30.1	**4**	113.3	50.4	**4**	159.0	70.8	**4**	204.6	91.1	**4**	250.3	111.4
5	22.8	10.2	**5**	68.5	30.5	**5**	114.2	50.8	**5**	159.9	71.2	**5**	205.5	91.5	**5**	251.2	111.9
6	23.8	10.6	**6**	69.4	30.9	**6**	115.1	51.2	**6**	160.8	71.6	**6**	206.5	91.9	**6**	252.1	112.3
7	24.7	11.0	**7**	70.3	31.3	**7**	116.0	51.7	**7**	161.7	72.0	**7**	207.4	92.3	**7**	253.1	112.7
8	25.6	11.4	**8**	71.3	31.7	**8**	116.9	52.1	**8**	162.6	72.4	**8**	208.3	92.7	**8**	254.0	113.1
9	26.5	11.8	**9**	72.2	32.1	**9**	117.8	52.5	**9**	163.5	72.8	**9**	209.2	93.1	**9**	254.9	113.5
30	27.4	12.2	**80**	73.1	32.5	**130**	118.8	52.9	**180**	164.4	73.2	**230**	210.1	93.5	**280**	255.8	113.9
1	28.3	12.6	**1**	74.0	32.9	**1**	119.7	53.3	**1**	165.4	73.6	**1**	211.0	94.0	**1**	256.7	114.3
2	29.2	13.0	**2**	74.9	33.4	**2**	120.6	53.7	**2**	166.3	74.0	**2**	211.9	94.4	**2**	257.6	114.7
3	30.1	13.4	**3**	75.8	33.8	**3**	121.5	54.1	**3**	167.2	74.4	**3**	212.9	94.8	**3**	258.5	115.1
4	31.1	13.8	**4**	76.7	34.2	**4**	122.4	54.5	**4**	168.1	74.8	**4**	213.8	95.2	**4**	259.4	115.5
5	32.0	14.2	**5**	77.7	34.6	**5**	123.3	54.9	**5**	169.0	75.2	**5**	214.7	95.6	**5**	260.4	115.9
6	32.9	14.6	**6**	78.6	35.0	**6**	124.2	55.3	**6**	169.9	75.7	**6**	215.6	96.0	**6**	261.3	116.3
7	33.8	15.0	**7**	79.5	35.4	**7**	125.2	55.7	**7**	170.8	76.1	**7**	216.5	96.4	**7**	262.2	116.7
8	34.7	15.5	**8**	80.4	35.8	**8**	126.1	56.1	**8**	171.7	76.5	**8**	217.4	96.8	**8**	263.1	117.1
9	35.6	15.9	**9**	81.3	36.2	**9**	127.0	56.5	**9**	172.7	76.9	**9**	218.3	97.2	**9**	264.0	117.5
40	36.5	16.3	**90**	82.2	36.6	**140**	127.9	56.9	**190**	173.6	77.3	**240**	219.3	97.6	**290**	264.9	118.0
1	37.5	16.7	**1**	83.1	37.0	**1**	128.8	57.3	**1**	174.5	77.7	**1**	220.2	98.0	**1**	265.8	118.4
2	38.4	17.1	**2**	84.0	37.4	**2**	129.7	57.8	**2**	175.4	78.1	**2**	221.1	98.4	**2**	266.8	118.8
3	39.3	17.5	**3**	85.0	37.8	**3**	130.6	58.2	**3**	176.3	78.5	**3**	222.0	98.8	**3**	267.7	119.2
4	40.2	17.9	**4**	85.9	38.2	**4**	131.6	58.6	**4**	177.2	78.9	**4**	222.9	99.2	**4**	268.6	119.6
5	41.1	18.3	**5**	86.8	38.6	**5**	132.5	59.0	**5**	178.1	79.3	**5**	223.8	99.7	**5**	269.5	120.0
6	42.0	18.7	**6**	87.7	39.0	**6**	133.4	59.4	**6**	179.1	79.7	**6**	224.7	100.1	**6**	270.4	120.4
7	42.9	19.1	**7**	88.6	39.5	**7**	134.3	59.8	**7**	180.0	80.1	**7**	225.6	100.5	**7**	271.3	120.8
8	43.9	19.5	**8**	89.5	39.9	**8**	135.2	60.2	**8**	180.9	80.5	**8**	226.6	100.9	**8**	272.2	121.2
9	44.8	19.9	**9**	90.4	40.3	**9**	136.1	60.6	**9**	181.8	80.9	**9**	227.5	101.3	**9**	273.1	121.6
D	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ
ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap

ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap	
D	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap
300	274.1	122.0	**350**	319.7	142.4	**400**	365.4	162.7	**450**	411.1	183.0	**500**	456.8	203.4	**550**	502.4	223.7
1	275.0	122.4	**1**	320.7	142.8	**1**	366.3	163.1	**1**	412.0	183.4	**1**	457.7	203.8	**1**	503.4	224.1
2	275.9	122.8	**2**	321.6	143.2	**2**	367.2	163.5	**2**	412.9	183.8	**2**	458.6	204.2	**2**	504.3	224.5
3	276.8	123.2	**3**	322.5	143.6	**3**	368.2	163.9	**3**	413.8	184.3	**3**	459.5	204.6	**3**	505.2	224.9
4	277.7	123.6	**4**	323.4	144.0	**4**	369.1	164.3	**4**	414.7	184.7	**4**	460.4	205.0	**4**	506.1	225.3
5	278.6	124.1	**5**	324.3	144.4	**5**	370.0	164.7	**5**	415.7	185.1	**5**	461.3	205.4	**5**	507.0	225.7
6	279.5	124.5	**6**	325.2	144.8	**6**	370.9	165.1	**6**	416.6	185.5	**6**	462.3	205.8	**6**	507.9	226.1
7	280.5	124.9	**7**	326.1	145.2	**7**	371.8	165.5	**7**	417.5	185.9	**7**	463.2	206.2	**7**	508.8	226.6
8	281.4	125.3	**8**	327.0	145.6	**8**	372.7	165.9	**8**	418.4	186.3	**8**	464.1	206.6	**8**	509.8	227.0
9	282.3	125.7	**9**	328.0	146.0	**9**	373.6	166.4	**9**	419.3	186.7	**9**	465.0	207.0	**9**	510.7	227.4
310	283.2	126.1	**360**	328.9	146.4	**410**	374.6	166.8	**460**	420.2	187.1	**510**	465.9	207.4	**560**	511.6	227.8
1	284.1	126.5	**1**	329.8	146.8	**1**	375.5	167.2	**1**	421.1	187.5	**1**	466.8	207.8	**1**	512.5	228.2
2	285.0	126.9	**2**	330.7	147.2	**2**	376.4	167.6	**2**	422.1	187.9	**2**	467.7	208.2	**2**	513.4	228.6
3	285.9	127.3	**3**	331.6	147.6	**3**	377.3	168.0	**3**	423.0	188.3	**3**	468.6	208.7	**3**	514.3	229.0
4	286.9	127.7	**4**	332.5	148.1	**4**	378.2	168.4	**4**	423.9	188.7	**4**	469.6	209.1	**4**	515.2	229.4
5	287.8	128.1	**5**	333.4	148.5	**5**	379.1	168.8	**5**	424.8	189.1	**5**	470.5	209.5	**5**	516.2	229.8
6	288.7	128.5	**6**	334.4	148.9	**6**	380.0	169.2	**6**	425.7	189.5	**6**	471.4	209.9	**6**	517.1	230.2
7	289.6	128.9	**7**	335.3	149.3	**7**	380.9	169.6	**7**	426.6	189.9	**7**	472.3	210.3	**7**	518.0	230.6
8	290.5	129.3	**8**	336.2	149.7	**8**	381.9	170.0	**8**	427.5	190.4	**8**	473.2	210.7	**8**	518.9	231.0
9	291.4	129.7	**9**	337.1	150.1	**9**	382.8	170.4	**9**	428.5	190.8	**9**	474.1	211.1	**9**	519.8	231.4
320	292.3	130.2	**370**	338.0	150.5	**420**	383.7	170.8	**470**	429.4	191.2	**520**	475.0	211.5	**570**	520.7	231.8
1	293.2	130.6	**1**	338.9	150.9	**1**	384.6	171.2	**1**	430.3	191.6	**1**	476.0	211.9	**1**	521.6	232.2
2	294.2	131.0	**2**	339.8	151.3	**2**	385.5	171.6	**2**	431.2	192.0	**2**	476.9	212.3	**2**	522.5	232.7
3	295.1	131.4	**3**	340.8	151.7	**3**	386.4	172.0	**3**	432.1	192.4	**3**	477.8	212.7	**3**	523.5	233.1
4	296.0	131.8	**4**	341.7	152.1	**4**	387.3	172.5	**4**	433.0	192.8	**4**	478.7	213.1	**4**	524.4	233.5
5	296.9	132.2	**5**	342.6	152.5	**5**	388.3	172.9	**5**	433.9	193.2	**5**	479.6	213.5	**5**	525.3	233.9
6	297.8	132.6	**6**	343.5	152.9	**6**	389.2	173.3	**6**	434.8	193.6	**6**	480.5	213.9	**6**	526.2	234.3
7	298.7	133.0	**7**	344.4	153.3	**7**	390.1	173.7	**7**	435.8	194.0	**7**	481.4	214.4	**7**	527.1	234.7
8	299.6	133.4	**8**	345.3	153.7	**8**	391.0	174.1	**8**	436.7	194.4	**8**	482.4	214.8	**8**	528.0	235.1
9	300.6	133.8	**9**	346.2	154.2	**9**	391.9	174.5	**9**	437.6	194.8	**9**	483.3	215.2	**9**	528.9	235.5
330	301.5	134.2	**380**	347.1	154.6	**430**	392.8	174.9	**480**	438.5	195.2	**530**	484.2	215.6	**580**	529.9	235.9
1	302.4	134.6	**1**	348.1	155.0	**1**	393.7	175.3	**1**	439.4	195.6	**1**	485.1	216.0	**1**	530.8	236.3
2	303.3	135.0	**2**	349.0	155.4	**2**	394.7	175.7	**2**	440.3	196.0	**2**	486.0	216.4	**2**	531.7	236.7
3	304.2	135.4	**3**	349.9	155.8	**3**	395.6	176.1	**3**	441.2	196.5	**3**	486.9	216.8	**3**	532.6	237.1
4	305.1	135.9	**4**	350.8	156.2	**4**	396.5	176.5	**4**	442.2	196.9	**4**	487.8	217.2	**4**	533.5	237.5
5	306.0	136.3	**5**	351.7	156.6	**5**	397.4	176.9	**5**	443.1	197.3	**5**	488.7	217.6	**5**	534.4	237.9
6	307.0	136.7	**6**	352.6	157.0	**6**	398.3	177.3	**6**	444.0	197.7	**6**	489.7	218.0	**6**	535.3	238.3
7	307.9	137.1	**7**	353.5	157.4	**7**	399.2	177.7	**7**	444.9	198.1	**7**	490.6	218.4	**7**	536.3	238.8
8	308.8	137.5	**8**	354.5	157.8	**8**	400.1	178.2	**8**	445.8	198.5	**8**	491.5	218.8	**8**	537.2	239.2
9	309.7	137.9	**9**	355.4	158.2	**9**	401.0	178.6	**9**	446.7	198.9	**9**	492.4	219.2	**9**	538.1	239.6
340	310.6	138.3	**390**	356.3	158.6	**440**	402.0	179.0	**490**	447.6	199.3	**540**	493.3	219.6	**590**	539.0	240.0
1	311.5	138.7	**1**	357.2	159.0	**1**	402.9	179.4	**1**	448.6	199.7	**1**	494.2	220.0	**1**	539.9	240.4
2	312.4	139.1	**2**	358.1	159.4	**2**	403.8	179.8	**2**	449.5	200.1	**2**	495.1	220.5	**2**	540.8	240.8
3	313.3	139.5	**3**	359.0	159.8	**3**	404.7	180.2	**3**	450.4	200.5	**3**	496.1	220.9	**3**	541.7	241.2
4	314.3	139.9	**4**	359.9	160.3	**4**	405.6	180.6	**4**	451.3	200.9	**4**	497.0	221.3	**4**	542.6	241.6
5	315.2	140.3	**5**	360.9	160.7	**5**	406.5	181.0	**5**	452.2	201.3	**5**	497.9	221.7	**5**	543.6	242.0
6	316.1	140.7	**6**	361.8	161.1	**6**	407.4	181.4	**6**	453.1	201.7	**6**	498.8	222.1	**6**	544.5	242.4
7	317.0	141.1	**7**	362.7	161.5	**7**	408.4	181.8	**7**	454.0	202.1	**7**	499.7	222.5	**7**	545.4	242.8
8	317.9	141.5	**8**	363.6	161.9	**8**	409.3	182.2	**8**	454.9	202.6	**8**	500.6	222.9	**8**	546.3	243.2
9	318.8	142.0	**9**	364.5	162.3	**9**	410.2	182.6	**9**	455.9	203.0	**9**	501.5	223.3	**9**	547.2	243.6
D	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ
ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap

ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap	
D	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap
0	0.0	0.0	**50**	45.3	21.1	**100**	90.6	42.3	**150**	135.9	63.4	**200**	181.3	84.5	**250**	226.6	105.7
1	0.9	0.4	**1**	46.2	21.6	**1**	91.5	42.7	**1**	136.9	63.8	**1**	182.2	84.9	**1**	227.5	106.1
2	1.8	0.8	**2**	47.1	22.0	**2**	92.4	43.1	**2**	137.8	64.2	**2**	183.1	85.4	**2**	228.4	106.5
3	2.7	1.3	**3**	48.0	22.4	**3**	93.3	43.5	**3**	138.7	64.7	**3**	184.0	85.8	**3**	229.3	106.9
4	3.6	1.7	**4**	48.9	22.8	**4**	94.3	44.0	**4**	139.6	65.1	**4**	184.9	86.2	**4**	230.2	107.3
5	4.5	2.1	**5**	49.8	23.2	**5**	95.2	44.4	**5**	140.5	65.5	**5**	185.8	86.6	**5**	231.1	107.8
6	5.4	2.5	**6**	50.8	23.7	**6**	96.1	44.8	**6**	141.4	65.9	**6**	186.7	87.1	**6**	232.0	108.2
7	6.3	3.0	**7**	51.7	24.1	**7**	97.0	45.2	**7**	142.3	66.4	**7**	187.6	87.5	**7**	232.9	108.6
8	7.3	3.4	**8**	52.6	24.5	**8**	97.9	45.6	**8**	143.2	66.8	**8**	188.5	87.9	**8**	233.8	109.0
9	8.2	3.8	**9**	53.5	24.9	**9**	98.8	46.1	**9**	144.1	67.2	**9**	189.4	88.3	**9**	234.7	109.5
10	9.1	4.2	**60**	54.4	25.4	**110**	99.7	46.5	**160**	145.0	67.6	**210**	190.3	88.7	**260**	235.6	109.9
1	10.0	4.6	**1**	55.3	25.8	**1**	100.6	46.9	**1**	145.9	68.0	**1**	191.2	89.2	**1**	236.5	110.3
2	10.9	5.1	**2**	56.2	26.2	**2**	101.5	47.3	**2**	146.8	68.5	**2**	192.1	89.6	**2**	237.5	110.7
3	11.8	5.5	**3**	57.1	26.6	**3**	102.4	47.8	**3**	147.7	68.9	**3**	193.0	90.0	**3**	238.4	111.1
4	12.7	5.9	**4**	58.0	27.0	**4**	103.3	48.2	**4**	148.6	69.3	**4**	193.9	90.4	**4**	239.3	111.6
5	13.6	6.3	**5**	58.9	27.5	**5**	104.2	48.6	**5**	149.5	69.7	**5**	194.9	90.9	**5**	240.2	112.0
6	14.5	6.8	**6**	59.8	27.9	**6**	105.1	49.0	**6**	150.4	70.2	**6**	195.8	91.3	**6**	241.1	112.4
7	15.4	7.2	**7**	60.7	28.3	**7**	106.0	49.4	**7**	151.4	70.6	**7**	196.7	91.7	**7**	242.0	112.8
8	16.3	7.6	**8**	61.6	28.7	**8**	106.9	49.9	**8**	152.3	71.0	**8**	197.6	92.1	**8**	242.9	113.3
9	17.2	8.0	**9**	62.5	29.2	**9**	107.9	50.3	**9**	153.2	71.4	**9**	198.5	92.6	**9**	243.8	113.7
20	18.1	8.5	**70**	63.4	29.6	**120**	108.8	50.7	**170**	154.1	71.8	**220**	199.4	93.0	**270**	244.7	114.1
1	19.0	8.9	**1**	64.3	30.0	**1**	109.7	51.1	**1**	155.0	72.3	**1**	200.3	93.4	**1**	245.6	114.5
2	19.9	9.3	**2**	65.3	30.4	**2**	110.6	51.6	**2**	155.9	72.7	**2**	201.2	93.8	**2**	246.5	115.0
3	20.8	9.7	**3**	66.2	30.9	**3**	111.5	52.0	**3**	156.8	73.1	**3**	202.1	94.2	**3**	247.4	115.4
4	21.8	10.1	**4**	67.1	31.3	**4**	112.4	52.4	**4**	157.7	73.5	**4**	203.0	94.7	**4**	248.3	115.8
5	22.7	10.6	**5**	68.0	31.7	**5**	113.3	52.8	**5**	158.6	74.0	**5**	203.9	95.1	**5**	249.2	116.2
6	23.6	11.0	**6**	68.9	32.1	**6**	114.2	53.2	**6**	159.5	74.4	**6**	204.8	95.5	**6**	250.1	116.6
7	24.5	11.4	**7**	69.8	32.5	**7**	115.1	53.7	**7**	160.4	74.8	**7**	205.7	95.9	**7**	251.0	117.1
8	25.4	11.8	**8**	70.7	33.0	**8**	116.0	54.1	**8**	161.3	75.2	**8**	206.6	96.4	**8**	252.0	117.5
9	26.3	12.3	**9**	71.6	33.4	**9**	116.9	54.5	**9**	162.2	75.6	**9**	207.5	96.8	**9**	252.9	117.9
30	27.2	12.7	**80**	72.5	33.8	**130**	117.8	54.9	**180**	163.1	76.1	**230**	208.5	97.2	**280**	253.8	118.3
1	28.1	13.1	**1**	73.4	34.2	**1**	118.7	55.4	**1**	164.0	76.5	**1**	209.4	97.6	**1**	254.7	118.8
2	29.0	13.5	**2**	74.3	34.7	**2**	119.6	55.8	**2**	164.9	76.9	**2**	210.3	98.0	**2**	255.6	119.2
3	29.9	13.9	**3**	75.2	35.1	**3**	120.5	56.2	**3**	165.9	77.3	**3**	211.2	98.5	**3**	256.5	119.6
4	30.8	14.4	**4**	76.1	35.5	**4**	121.4	56.6	**4**	166.8	77.8	**4**	212.1	98.9	**4**	257.4	120.0
5	31.7	14.8	**5**	77.0	35.9	**5**	122.4	57.1	**5**	167.7	78.2	**5**	213.0	99.3	**5**	258.3	120.4
6	32.6	15.2	**6**	77.9	36.3	**6**	123.3	57.5	**6**	168.6	78.6	**6**	213.9	99.7	**6**	259.2	120.9
7	33.5	15.6	**7**	78.8	36.8	**7**	124.2	57.9	**7**	169.5	79.0	**7**	214.8	100.2	**7**	260.1	121.3
8	34.4	16.1	**8**	79.8	37.2	**8**	125.1	58.3	**8**	170.4	79.5	**8**	215.7	100.6	**8**	261.0	121.7
9	35.3	16.5	**9**	80.7	37.6	**9**	126.0	58.7	**9**	171.3	79.9	**9**	216.6	101.0	**9**	261.9	122.1
40	36.3	16.9	**90**	81.6	38.0	**140**	126.9	59.2	**190**	172.2	80.3	**240**	217.5	101.4	**290**	262.8	122.6
1	37.2	17.3	**1**	82.5	38.5	**1**	127.8	59.6	**1**	173.1	80.7	**1**	218.4	101.9	**1**	263.7	123.0
2	38.1	17.7	**2**	83.4	38.9	**2**	128.7	60.0	**2**	174.0	81.1	**2**	219.3	102.3	**2**	264.6	123.4
3	39.0	18.2	**3**	84.3	39.3	**3**	129.6	60.4	**3**	174.9	81.6	**3**	220.2	102.7	**3**	265.5	123.8
4	39.9	18.6	**4**	85.2	39.7	**4**	130.5	60.9	**4**	175.8	82.0	**4**	221.1	103.1	**4**	266.5	124.2
5	40.8	19.0	**5**	86.1	40.1	**5**	131.4	61.3	**5**	176.7	82.4	**5**	222.0	103.5	**5**	267.4	124.7
6	41.7	19.4	**6**	87.0	40.6	**6**	132.3	61.7	**6**	177.6	82.8	**6**	223.0	104.0	**6**	268.3	125.1
7	42.6	19.9	**7**	87.9	41.0	**7**	133.2	62.1	**7**	178.5	83.3	**7**	223.9	104.4	**7**	269.2	125.5
8	43.5	20.3	**8**	88.8	41.4	**8**	134.1	62.5	**8**	179.4	83.7	**8**	224.8	104.8	**8**	270.1	125.9
9	44.4	20.7	**9**	89.7	41.8	**9**	135.0	63.0	**9**	180.4	84.1	**9**	225.7	105.2	**9**	271.0	126.4
D	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ
ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap

ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap	
D	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap
300	271.9	126.8	**350**	317.2	147.9	**400**	362.5	169.0	**450**	407.8	190.2	**500**	453.2	211.3	**550**	498.5	232.4
1	272.8	127.2	**1**	318.1	148.3	**1**	363.4	169.5	**1**	408.7	190.6	**1**	454.1	211.7	**1**	499.4	232.9
2	273.7	127.6	**2**	319.0	148.8	**2**	364.3	169.9	**2**	409.7	191.0	**2**	455.0	212.2	**2**	500.3	233.3
3	274.6	128.1	**3**	319.9	149.2	**3**	365.2	170.3	**3**	410.6	191.4	**3**	455.9	212.6	**3**	501.2	233.7
4	275.5	128.5	**4**	320.8	149.6	**4**	366.1	170.7	**4**	411.5	191.9	**4**	456.8	213.0	**4**	502.1	234.1
5	276.4	128.9	**5**	321.7	150.0	**5**	367.1	171.2	**5**	412.4	192.3	**5**	457.7	213.4	**5**	503.0	234.6
6	277.3	129.3	**6**	322.6	150.5	**6**	368.0	171.6	**6**	413.3	192.7	**6**	458.6	213.8	**6**	503.9	235.0
7	278.2	129.7	**7**	323.6	150.9	**7**	368.9	172.0	**7**	414.2	193.1	**7**	459.5	214.3	**7**	504.8	235.4
8	279.1	130.2	**8**	324.5	151.3	**8**	369.8	172.4	**8**	415.1	193.6	**8**	460.4	214.7	**8**	505.7	235.8
9	280.0	130.6	**9**	325.4	151.7	**9**	370.7	172.9	**9**	416.0	194.0	**9**	461.3	215.1	**9**	506.6	236.2
310	281.0	131.0	**360**	326.3	152.1	**410**	371.6	173.3	**460**	416.9	194.4	**510**	462.2	215.5	**560**	507.5	236.7
1	281.9	131.4	**1**	327.2	152.6	**1**	372.5	173.7	**1**	417.8	194.8	**1**	463.1	216.0	**1**	508.4	237.1
2	282.8	131.9	**2**	328.1	153.0	**2**	373.4	174.1	**2**	418.7	195.2	**2**	464.0	216.4	**2**	509.3	237.5
3	283.7	132.3	**3**	329.0	153.4	**3**	374.3	174.5	**3**	419.6	195.7	**3**	464.9	216.8	**3**	510.3	237.9
4	284.6	132.7	**4**	329.9	153.8	**4**	375.2	175.0	**4**	420.5	196.1	**4**	465.8	217.2	**4**	511.2	238.4
5	285.5	133.1	**5**	330.8	154.3	**5**	376.1	175.4	**5**	421.4	196.5	**5**	466.7	217.6	**5**	512.1	238.8
6	286.4	133.5	**6**	331.7	154.7	**6**	377.0	175.8	**6**	422.3	196.9	**6**	467.7	218.1	**6**	513.0	239.2
7	287.3	134.0	**7**	332.6	155.1	**7**	377.9	176.2	**7**	423.2	197.4	**7**	468.6	218.5	**7**	513.9	239.6
8	288.2	134.4	**8**	333.5	155.5	**8**	378.8	176.7	**8**	424.2	197.8	**8**	469.5	218.9	**8**	514.8	240.0
9	289.1	134.8	**9**	334.4	155.9	**9**	379.7	177.1	**9**	425.1	198.2	**9**	470.4	219.3	**9**	515.7	240.5
320	290.0	135.2	**370**	335.3	156.4	**420**	380.6	177.5	**470**	426.0	198.6	**520**	471.3	219.8	**570**	516.6	240.9
1	290.9	135.7	**1**	336.2	156.8	**1**	381.6	177.9	**1**	426.9	199.1	**1**	472.2	220.2	**1**	517.5	241.3
2	291.8	136.1	**2**	337.1	157.2	**2**	382.5	178.3	**2**	427.8	199.5	**2**	473.1	220.6	**2**	518.4	241.7
3	292.7	136.5	**3**	338.1	157.6	**3**	383.4	178.8	**3**	428.7	199.9	**3**	474.0	221.0	**3**	519.3	242.2
4	293.6	136.9	**4**	339.0	158.1	**4**	384.3	179.2	**4**	429.6	200.3	**4**	474.9	221.5	**4**	520.2	242.6
5	294.5	137.4	**5**	339.9	158.5	**5**	385.2	179.6	**5**	430.5	200.7	**5**	475.8	221.9	**5**	521.1	243.0
6	295.5	137.8	**6**	340.8	158.9	**6**	386.1	180.0	**6**	431.4	201.2	**6**	476.7	222.3	**6**	522.0	243.4
7	296.4	138.2	**7**	341.7	159.3	**7**	387.0	180.5	**7**	432.3	201.6	**7**	477.6	222.7	**7**	522.9	243.9
8	297.3	138.6	**8**	342.6	159.7	**8**	387.9	180.9	**8**	433.2	202.0	**8**	478.5	223.1	**8**	523.8	244.3
9	298.2	139.0	**9**	343.5	160.2	**9**	388.8	181.3	**9**	434.1	202.4	**9**	479.4	223.6	**9**	524.8	244.7
330	299.1	139.5	**380**	344.4	160.6	**430**	389.7	181.7	**480**	435.0	202.9	**530**	480.3	224.0	**580**	525.7	245.1
1	300.0	139.9	**1**	345.3	161.0	**1**	390.6	182.1	**1**	435.9	203.3	**1**	481.2	224.4	**1**	526.6	245.5
2	300.9	140.3	**2**	346.2	161.4	**2**	391.5	182.6	**2**	436.8	203.7	**2**	482.2	224.8	**2**	527.5	246.0
3	301.8	140.7	**3**	347.1	161.9	**3**	392.4	183.0	**3**	437.7	204.1	**3**	483.1	225.3	**3**	528.4	246.4
4	302.7	141.2	**4**	348.0	162.3	**4**	393.3	183.4	**4**	438.7	204.5	**4**	484.0	225.7	**4**	529.3	246.8
5	303.6	141.6	**5**	348.9	162.7	**5**	394.2	183.8	**5**	439.6	205.0	**5**	484.9	226.1	**5**	530.2	247.2
6	304.5	142.0	**6**	349.8	163.1	**6**	395.2	184.3	**6**	440.5	205.4	**6**	485.8	226.5	**6**	531.1	247.7
7	305.4	142.4	**7**	350.7	163.6	**7**	396.1	184.7	**7**	441.4	205.8	**7**	486.7	226.9	**7**	532.0	248.1
8	306.3	142.8	**8**	351.6	164.0	**8**	397.0	185.1	**8**	442.3	206.2	**8**	487.6	227.4	**8**	532.9	248.5
9	307.2	143.3	**9**	352.6	164.4	**9**	397.9	185.5	**9**	443.2	206.7	**9**	488.5	227.8	**9**	533.8	248.9
340	308.1	143.7	**390**	353.5	164.8	**440**	398.8	186.0	**490**	444.1	207.1	**540**	489.4	228.2	**590**	534.7	249.3
1	309.1	144.1	**1**	354.4	165.2	**1**	399.7	186.4	**1**	445.0	207.5	**1**	490.3	228.6	**1**	535.6	249.8
2	310.0	144.5	**2**	355.3	165.7	**2**	400.6	186.8	**2**	445.9	207.9	**2**	491.2	229.1	**2**	536.5	250.2
3	310.9	145.0	**3**	356.2	166.1	**3**	401.5	187.2	**3**	446.8	208.4	**3**	492.1	229.5	**3**	537.4	250.6
4	311.8	145.4	**4**	357.1	166.5	**4**	402.4	187.6	**4**	447.7	208.8	**4**	493.0	229.9	**4**	538.3	251.0
5	312.7	145.8	**5**	358.0	166.9	**5**	403.3	188.1	**5**	448.6	209.2	**5**	493.9	230.3	**5**	539.3	251.5
6	313.6	146.2	**6**	358.9	167.4	**6**	404.2	188.5	**6**	449.5	209.6	**6**	494.8	230.7	**6**	540.2	251.9
7	314.5	146.6	**7**	359.8	167.8	**7**	405.1	188.9	**7**	450.4	210.0	**7**	495.8	231.2	**7**	541.1	252.3
8	315.4	147.1	**8**	360.7	168.2	**8**	406.0	189.3	**8**	451.3	210.5	**8**	496.7	231.6	**8**	542.0	252.7
9	316.3	147.5	**9**	361.6	168.6	**9**	406.9	189.8	**9**	452.2	210.9	**9**	497.6	232.0	**9**	542.9	253.1
D	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ
ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap

ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap	
D	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap
0	0.0	0.0	**50**	44.9	21.9	**100**	89.9	43.8	**150**	134.8	65.8	**200**	179.8	87.7	**250**	224.7	109.6
1	0.9	0.4	**1**	45.8	22.4	**1**	90.8	44.3	**1**	135.7	66.2	**1**	180.7	88.1	**1**	225.6	110.0
2	1.8	0.9	**2**	46.7	22.8	**2**	91.7	44.7	**2**	136.6	66.6	**2**	181.6	88.6	**2**	226.5	110.5
3	2.7	1.3	**3**	47.6	23.2	**3**	92.6	45.2	**3**	137.5	67.1	**3**	182.5	89.0	**3**	227.4	110.9
4	3.6	1.8	**4**	48.5	23.7	**4**	93.5	45.6	**4**	138.4	67.5	**4**	183.4	89.4	**4**	228.3	111.3
5	4.5	2.2	**5**	49.4	24.1	**5**	94.4	46.0	**5**	139.3	67.9	**5**	184.3	89.9	**5**	229.2	111.8
6	5.4	2.6	**6**	50.3	24.5	**6**	95.3	46.5	**6**	140.2	68.4	**6**	185.2	90.3	**6**	230.1	112.2
7	6.3	3.1	**7**	51.2	25.0	**7**	96.2	46.9	**7**	141.1	68.8	**7**	186.1	90.7	**7**	231.0	112.7
8	7.2	3.5	**8**	52.1	25.4	**8**	97.1	47.3	**8**	142.0	69.3	**8**	186.9	91.2	**8**	231.9	113.1
9	8.1	3.9	**9**	53.0	25.9	**9**	98.0	47.8	**9**	142.9	69.7	**9**	187.8	91.6	**9**	232.8	113.5
10	9.0	4.4	**60**	53.9	26.3	**110**	98.9	48.2	**160**	143.8	70.1	**210**	188.7	92.1	**260**	233.7	114.0
1	9.9	4.8	**1**	54.8	26.7	**1**	99.8	48.7	**1**	144.7	70.6	**1**	189.6	92.5	**1**	234.6	114.4
2	10.8	5.3	**2**	55.7	27.2	**2**	100.7	49.1	**2**	145.6	71.0	**2**	190.5	92.9	**2**	235.5	114.9
3	11.7	5.7	**3**	56.6	27.6	**3**	101.6	49.5	**3**	146.5	71.5	**3**	191.4	93.4	**3**	236.4	115.3
4	12.6	6.1	**4**	57.5	28.1	**4**	102.5	50.0	**4**	147.4	71.9	**4**	192.3	93.8	**4**	237.3	115.7
5	13.5	6.6	**5**	58.4	28.5	**5**	103.4	50.4	**5**	148.3	72.3	**5**	193.2	94.2	**5**	238.2	116.2
6	14.4	7.0	**6**	59.3	28.9	**6**	104.3	50.9	**6**	149.2	72.8	**6**	194.1	94.7	**6**	239.1	116.6
7	15.3	7.5	**7**	60.2	29.4	**7**	105.2	51.3	**7**	150.1	73.2	**7**	195.0	95.1	**7**	240.0	117.0
8	16.2	7.9	**8**	61.1	29.8	**8**	106.1	51.7	**8**	151.0	73.6	**8**	195.9	95.6	**8**	240.9	117.5
9	17.1	8.3	**9**	62.0	30.2	**9**	107.0	52.2	**9**	151.9	74.1	**9**	196.8	96.0	**9**	241.8	117.9
20	18.0	8.8	**70**	62.9	30.7	**120**	107.9	52.6	**170**	152.8	74.5	**220**	197.7	96.4	**270**	242.7	118.4
1	18.9	9.2	**1**	63.8	31.1	**1**	108.8	53.0	**1**	153.7	75.0	**1**	198.6	96.9	**1**	243.6	118.8
2	19.8	9.6	**2**	64.7	31.6	**2**	109.7	53.5	**2**	154.6	75.4	**2**	199.5	97.3	**2**	244.5	119.2
3	20.7	10.1	**3**	65.6	32.0	**3**	110.6	53.9	**3**	155.5	75.8	**3**	200.4	97.8	**3**	245.4	119.7
4	21.6	10.5	**4**	66.5	32.4	**4**	111.5	54.4	**4**	156.4	76.3	**4**	201.3	98.2	**4**	246.3	120.1
5	22.5	11.0	**5**	67.4	32.9	**5**	112.3	54.8	**5**	157.3	76.7	**5**	202.2	98.6	**5**	247.2	120.6
6	23.4	11.4	**6**	68.3	33.3	**6**	113.2	55.2	**6**	158.2	77.2	**6**	203.1	99.1	**6**	248.1	121.0
7	24.3	11.8	**7**	69.2	33.8	**7**	114.1	55.7	**7**	159.1	77.6	**7**	204.0	99.5	**7**	249.0	121.4
8	25.2	12.3	**8**	70.1	34.2	**8**	115.0	56.1	**8**	160.0	78.0	**8**	204.9	99.9	**8**	249.9	121.9
9	26.1	12.7	**9**	71.0	34.6	**9**	115.9	56.5	**9**	160.9	78.5	**9**	205.8	100.4	**9**	250.8	122.3
30	27.0	13.2	**80**	71.9	35.1	**130**	116.8	57.0	**180**	161.8	78.9	**230**	206.7	100.8	**280**	251.7	122.7
1	27.9	13.6	**1**	72.8	35.5	**1**	117.7	57.4	**1**	162.7	79.3	**1**	207.6	101.3	**1**	252.6	123.2
2	28.8	14.0	**2**	73.7	35.9	**2**	118.6	57.9	**2**	163.6	79.8	**2**	208.5	101.7	**2**	253.5	123.6
3	29.7	14.5	**3**	74.6	36.4	**3**	119.5	58.3	**3**	164.5	80.2	**3**	209.4	102.1	**3**	254.4	124.1
4	30.6	14.9	**4**	75.5	36.8	**4**	120.4	58.7	**4**	165.4	80.7	**4**	210.3	102.6	**4**	255.3	124.5
5	31.5	15.3	**5**	76.4	37.3	**5**	121.3	59.2	**5**	166.3	81.1	**5**	211.2	103.0	**5**	256.2	124.9
6	32.4	15.8	**6**	77.3	37.7	**6**	122.2	59.6	**6**	167.2	81.5	**6**	212.1	103.5	**6**	257.1	125.4
7	33.3	16.2	**7**	78.2	38.1	**7**	123.1	60.1	**7**	168.1	82.0	**7**	213.0	103.9	**7**	258.0	125.8
8	34.2	16.7	**8**	79.1	38.6	**8**	124.0	60.5	**8**	169.0	82.4	**8**	213.9	104.3	**8**	258.9	126.3
9	35.1	17.1	**9**	80.0	39.0	**9**	124.9	60.9	**9**	169.9	82.9	**9**	214.8	104.8	**9**	259.8	126.7
40	36.0	17.5	**90**	80.9	39.5	**140**	125.8	61.4	**190**	170.8	83.3	**240**	215.7	105.2	**290**	260.7	127.1
1	36.9	18.0	**1**	81.8	39.9	**1**	126.7	61.8	**1**	171.7	83.7	**1**	216.6	105.6	**1**	261.5	127.6
2	37.7	18.4	**2**	82.7	40.3	**2**	127.6	62.2	**2**	172.6	84.2	**2**	217.5	106.1	**2**	262.4	128.0
3	38.6	18.8	**3**	83.6	40.8	**3**	128.5	62.7	**3**	173.5	84.6	**3**	218.4	106.5	**3**	263.3	128.4
4	39.5	19.3	**4**	84.5	41.2	**4**	129.4	63.1	**4**	174.4	85.0	**4**	219.3	107.0	**4**	264.2	128.9
5	40.4	19.7	**5**	85.4	41.6	**5**	130.3	63.6	**5**	175.3	85.5	**5**	220.2	107.4	**5**	265.1	129.3
6	41.3	20.2	**6**	86.3	42.1	**6**	131.2	64.0	**6**	176.2	85.9	**6**	221.1	107.8	**6**	266.0	129.8
7	42.2	20.6	**7**	87.2	42.5	**7**	132.1	64.4	**7**	177.1	86.4	**7**	222.0	108.3	**7**	266.9	130.2
8	43.1	21.0	**8**	88.1	43.0	**8**	133.0	64.9	**8**	178.0	86.8	**8**	222.9	108.7	**8**	267.8	130.6
9	44.0	21.5	**9**	89.0	43.4	**9**	133.9	65.3	**9**	178.9	87.2	**9**	223.8	109.2	**9**	268.7	131.1
D	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ
ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap

ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap	
D	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap
300	269.6	131.5	**350**	314.6	153.4	**400**	359.5	175.3	**450**	404.5	197.3	**500**	449.4	219.2	**550**	494.3	241.1
1	270.5	131.9	**1**	315.5	153.9	**1**	360.4	175.8	**1**	405.4	197.7	**1**	450.3	219.6	**1**	495.2	241.5
2	271.4	132.4	**2**	316.4	154.3	**2**	361.3	176.2	**2**	406.3	198.1	**2**	451.2	220.1	**2**	496.1	242.0
3	272.3	132.8	**3**	317.3	154.7	**3**	362.2	176.7	**3**	407.2	198.6	**3**	452.1	220.5	**3**	497.0	242.4
4	273.2	133.3	**4**	318.2	155.2	**4**	363.1	177.1	**4**	408.1	199.0	**4**	453.0	220.9	**4**	497.9	242.9
5	274.1	133.7	**5**	319.1	155.6	**5**	364.0	177.5	**5**	409.0	199.5	**5**	453.9	221.4	**5**	498.8	243.3
6	275.0	134.1	**6**	320.0	156.1	**6**	364.9	178.0	**6**	409.8	199.9	**6**	454.8	221.8	**6**	499.7	243.7
7	275.9	134.6	**7**	320.9	156.5	**7**	365.8	178.4	**7**	410.7	200.3	**7**	455.7	222.3	**7**	500.6	244.2
8	276.8	135.0	**8**	321.8	156.9	**8**	366.7	178.9	**8**	411.6	200.8	**8**	456.6	222.7	**8**	501.5	244.6
9	277.7	135.5	**9**	322.7	157.4	**9**	367.6	179.3	**9**	412.5	201.2	**9**	457.5	223.1	**9**	502.4	245.0
310	278.6	135.9	**360**	323.6	157.8	**410**	368.5	179.7	**460**	413.4	201.7	**510**	458.4	223.6	**560**	503.3	245.5
1	279.5	136.3	**1**	324.5	158.3	**1**	369.4	180.2	**1**	414.3	202.1	**1**	459.3	224.0	**1**	504.2	245.9
2	280.4	136.8	**2**	325.4	158.7	**2**	370.3	180.6	**2**	415.2	202.5	**2**	460.2	224.4	**2**	505.1	246.4
3	281.3	137.2	**3**	326.3	159.1	**3**	371.2	181.0	**3**	416.1	203.0	**3**	461.1	224.9	**3**	506.0	246.8
4	282.2	137.6	**4**	327.2	159.6	**4**	372.1	181.5	**4**	417.0	203.4	**4**	462.0	225.3	**4**	506.9	247.2
5	283.1	138.1	**5**	328.1	160.0	**5**	373.0	181.9	**5**	417.9	203.8	**5**	462.9	225.8	**5**	507.8	247.7
6	284.0	138.5	**6**	329.0	160.4	**6**	373.9	182.4	**6**	418.8	204.3	**6**	463.8	226.2	**6**	508.7	248.1
7	284.9	139.0	**7**	329.9	160.9	**7**	374.8	182.8	**7**	419.7	204.7	**7**	464.7	226.6	**7**	509.6	248.6
8	285.8	139.4	**8**	330.8	161.3	**8**	375.7	183.2	**8**	420.6	205.2	**8**	465.6	227.1	**8**	510.5	249.0
9	286.7	139.8	**9**	331.7	161.8	**9**	376.6	183.7	**9**	421.5	205.6	**9**	466.5	227.5	**9**	511.4	249.4
320	287.6	140.3	**370**	332.6	162.2	**420**	377.5	184.1	**470**	422.4	206.0	**520**	467.4	228.0	**570**	512.3	249.9
1	288.5	140.7	**1**	333.5	162.6	**1**	378.4	184.6	**1**	423.3	206.5	**1**	468.3	228.4	**1**	513.2	250.3
2	289.4	141.2	**2**	334.4	163.1	**2**	379.3	185.0	**2**	424.2	206.9	**2**	469.2	228.8	**2**	514.1	250.7
3	290.3	141.6	**3**	335.3	163.5	**3**	380.2	185.4	**3**	425.1	207.3	**3**	470.1	229.3	**3**	515.0	251.2
4	291.2	142.0	**4**	336.1	164.0	**4**	381.1	185.9	**4**	426.0	207.8	**4**	471.0	229.7	**4**	515.9	251.6
5	292.1	142.5	**5**	337.0	164.4	**5**	382.0	186.3	**5**	426.9	208.2	**5**	471.9	230.1	**5**	516.8	252.1
6	293.0	142.9	**6**	337.9	164.8	**6**	382.9	186.7	**6**	427.8	208.7	**6**	472.8	230.6	**6**	517.7	252.5
7	293.9	143.3	**7**	338.8	165.3	**7**	383.8	187.2	**7**	428.7	209.1	**7**	473.7	231.0	**7**	518.6	252.9
8	294.8	143.8	**8**	339.7	165.7	**8**	384.7	187.6	**8**	429.6	209.5	**8**	474.6	231.5	**8**	519.5	253.4
9	295.7	144.2	**9**	340.6	166.1	**9**	385.6	188.1	**9**	430.5	210.0	**9**	475.5	231.9	**9**	520.4	253.8
330	296.6	144.7	**380**	341.5	166.6	**430**	386.5	188.5	**480**	431.4	210.4	**530**	476.4	232.3	**580**	521.3	254.3
1	297.5	145.1	**1**	342.4	167.0	**1**	387.4	188.9	**1**	432.3	210.9	**1**	477.3	232.8	**1**	522.2	254.7
2	298.4	145.5	**2**	343.3	167.5	**2**	388.3	189.4	**2**	433.2	211.3	**2**	478.2	233.2	**2**	523.1	255.1
3	299.3	146.0	**3**	344.2	167.9	**3**	389.2	189.8	**3**	434.1	211.7	**3**	479.1	233.7	**3**	524.0	255.6
4	300.2	146.4	**4**	345.1	168.3	**4**	390.1	190.3	**4**	435.0	212.2	**4**	480.0	234.1	**4**	524.9	256.0
5	301.1	146.9	**5**	346.0	168.8	**5**	391.0	190.7	**5**	435.9	212.6	**5**	480.9	234.5	**5**	525.8	256.4
6	302.0	147.3	**6**	346.9	169.2	**6**	391.9	191.1	**6**	436.8	213.0	**6**	481.8	235.0	**6**	526.7	256.9
7	302.9	147.7	**7**	347.8	169.6	**7**	392.8	191.6	**7**	437.7	213.5	**7**	482.7	235.4	**7**	527.6	257.3
8	303.8	148.2	**8**	348.7	170.1	**8**	393.7	192.0	**8**	438.6	213.9	**8**	483.6	235.8	**8**	528.5	257.8
9	304.7	148.6	**9**	349.6	170.5	**9**	394.6	192.4	**9**	439.5	214.4	**9**	484.4	236.3	**9**	529.4	258.2
340	305.6	149.0	**390**	350.5	171.0	**440**	395.5	192.9	**490**	440.4	214.8	**540**	485.3	236.7	**590**	530.3	258.6
1	306.5	149.5	**1**	351.4	171.4	**1**	396.4	193.3	**1**	441.3	215.2	**1**	486.2	237.2	**1**	531.2	259.1
2	307.4	149.9	**2**	352.3	171.8	**2**	397.3	193.8	**2**	442.2	215.7	**2**	487.1	237.6	**2**	532.1	259.5
3	308.3	150.4	**3**	353.2	172.3	**3**	398.2	194.2	**3**	443.1	216.1	**3**	488.0	238.0	**3**	533.0	260.0
4	309.2	150.8	**4**	354.1	172.7	**4**	399.1	194.6	**4**	444.0	216.6	**4**	488.9	238.5	**4**	533.9	260.4
5	310.1	151.2	**5**	355.0	173.2	**5**	400.0	195.1	**5**	444.9	217.0	**5**	489.8	238.9	**5**	534.8	260.8
6	311.0	151.7	**6**	355.9	173.6	**6**	400.9	195.5	**6**	445.8	217.4	**6**	490.7	239.4	**6**	535.7	261.3
7	311.9	152.1	**7**	356.8	174.0	**7**	401.8	196.0	**7**	446.7	217.9	**7**	491.6	239.8	**7**	536.6	261.7
8	312.8	152.6	**8**	357.7	174.5	**8**	402.7	196.4	**8**	447.6	218.3	**8**	492.5	240.2	**8**	537.5	262.1
9	313.7	153.0	**9**	358.6	174.9	**9**	403.6	196.8	**9**	448.5	218.7	**9**	493.4	240.7	**9**	538.4	262.6
D	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ
ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap

TABELA 1

TÁBUAS DE CARTEAÇÃO

ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap	
D	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap
0	0.0	0.0	**50**	44.6	22.7	**100**	89.1	45.4	**150**	133.7	68.1	**200**	178.2	90.8	**250**	222.8	113.5
1	0.9	0.5	**1**	45.4	23.2	**1**	90.0	45.9	**1**	134.5	68.6	**1**	179.1	91.3	**1**	223.6	114.0
2	1.8	0.9	**2**	46.3	23.6	**2**	90.9	46.3	**2**	135.4	69.0	**2**	180.0	91.7	**2**	224.5	114.4
3	2.7	1.4	**3**	47.2	24.1	**3**	91.8	46.8	**3**	136.3	69.5	**3**	180.9	92.2	**3**	225.4	114.9
4	3.6	1.8	**4**	48.1	24.5	**4**	92.7	47.2	**4**	137.2	69.9	**4**	181.8	92.6	**4**	226.3	115.3
5	4.5	2.3	**5**	49.0	25.0	**5**	93.6	47.7	**5**	138.1	70.4	**5**	182.7	93.1	**5**	227.2	115.8
6	5.3	2.7	**6**	49.9	25.4	**6**	94.4	48.1	**6**	139.0	70.8	**6**	183.5	93.5	**6**	228.1	116.2
7	6.2	3.2	**7**	50.8	25.9	**7**	95.3	48.6	**7**	139.9	71.3	**7**	184.4	94.0	**7**	229.0	116.7
8	7.1	3.6	**8**	51.7	26.3	**8**	96.2	49.0	**8**	140.8	71.7	**8**	185.3	94.4	**8**	229.9	117.1
9	8.0	4.1	**9**	52.6	26.8	**9**	97.1	49.5	**9**	141.7	72.2	**9**	186.2	94.9	**9**	230.8	117.6
10	8.9	4.5	**60**	53.5	27.2	**110**	98.0	49.9	**160**	142.6	72.6	**210**	187.1	95.3	**260**	231.7	118.0
1	9.8	5.0	**1**	54.4	27.7	**1**	98.9	50.4	**1**	143.5	73.1	**1**	188.0	95.8	**1**	232.6	118.5
2	10.7	5.4	**2**	55.2	28.1	**2**	99.8	50.8	**2**	144.3	73.5	**2**	188.9	96.2	**2**	233.4	118.9
3	11.6	5.9	**3**	56.1	28.6	**3**	100.7	51.3	**3**	145.2	74.0	**3**	189.8	96.7	**3**	234.3	119.4
4	12.5	6.4	**4**	57.0	29.1	**4**	101.6	51.8	**4**	146.1	74.5	**4**	190.7	97.2	**4**	235.2	119.9
5	13.4	6.8	**5**	57.9	29.5	**5**	102.5	52.2	**5**	147.0	74.9	**5**	191.6	97.6	**5**	236.1	120.3
6	14.3	7.3	**6**	58.8	30.0	**6**	103.4	52.7	**6**	147.9	75.4	**6**	192.5	98.1	**6**	237.0	120.8
7	15.1	7.7	**7**	59.7	30.4	**7**	104.2	53.1	**7**	148.8	75.8	**7**	193.3	98.5	**7**	237.9	121.2
8	16.0	8.2	**8**	60.6	30.9	**8**	105.1	53.6	**8**	149.7	76.3	**8**	194.2	99.0	**8**	238.8	121.7
9	16.9	8.6	**9**	61.5	31.3	**9**	106.0	54.0	**9**	150.6	76.7	**9**	195.1	99.4	**9**	239.7	122.1
20	17.8	9.1	**70**	62.4	31.8	**120**	106.9	54.5	**170**	151.5	77.2	**220**	196.0	99.9	**270**	240.6	122.6
1	18.7	9.5	**1**	63.3	32.2	**1**	107.8	54.9	**1**	152.4	77.6	**1**	196.9	100.3	**1**	241.5	123.0
2	19.6	10.0	**2**	64.2	32.7	**2**	108.7	55.4	**2**	153.3	78.1	**2**	197.8	100.8	**2**	242.4	123.5
3	20.5	10.4	**3**	65.0	33.1	**3**	109.6	55.8	**3**	154.1	78.5	**3**	198.7	101.2	**3**	243.2	123.9
4	21.4	10.9	**4**	65.9	33.6	**4**	110.5	56.3	**4**	155.0	79.0	**4**	199.6	101.7	**4**	244.1	124.4
5	22.3	11.3	**5**	66.8	34.0	**5**	111.4	56.7	**5**	155.9	79.4	**5**	200.5	102.1	**5**	245.0	124.8
6	23.2	11.8	**6**	67.7	34.5	**6**	112.3	57.2	**6**	156.8	79.9	**6**	201.4	102.6	**6**	245.9	125.3
7	24.1	12.3	**7**	68.6	35.0	**7**	113.2	57.7	**7**	157.7	80.4	**7**	202.3	103.1	**7**	246.8	125.8
8	24.9	12.7	**8**	69.5	35.4	**8**	114.0	58.1	**8**	158.6	80.8	**8**	203.1	103.5	**8**	247.7	126.2
9	25.8	13.2	**9**	70.4	35.9	**9**	114.9	58.6	**9**	159.5	81.3	**9**	204.0	104.0	**9**	248.6	126.7
30	26.7	13.6	**80**	71.3	36.3	**130**	115.8	59.0	**180**	160.4	81.7	**230**	204.9	104.4	**280**	249.5	127.1
1	27.6	14.1	**1**	72.2	36.8	**1**	116.7	59.5	**1**	161.3	82.2	**1**	205.8	104.9	**1**	250.4	127.6
2	28.5	14.5	**2**	73.1	37.2	**2**	117.6	59.9	**2**	162.2	82.6	**2**	206.7	105.3	**2**	251.3	128.0
3	29.4	15.0	**3**	74.0	37.7	**3**	118.5	60.4	**3**	163.1	83.1	**3**	207.6	105.8	**3**	252.2	128.5
4	30.3	15.4	**4**	74.8	38.1	**4**	119.4	60.8	**4**	163.9	83.5	**4**	208.5	106.2	**4**	253.0	128.9
5	31.2	15.9	**5**	75.7	38.6	**5**	120.3	61.3	**5**	164.8	84.0	**5**	209.4	106.7	**5**	253.9	129.4
6	32.1	16.3	**6**	76.6	39.0	**6**	121.2	61.7	**6**	165.7	84.4	**6**	210.3	107.1	**6**	254.8	129.8
7	33.0	16.8	**7**	77.5	39.5	**7**	122.1	62.2	**7**	166.6	84.9	**7**	211.2	107.6	**7**	255.7	130.3
8	33.9	17.3	**8**	78.4	40.0	**8**	123.0	62.7	**8**	167.5	85.4	**8**	212.1	108.0	**8**	256.6	130.7
9	34.7	17.7	**9**	79.3	40.4	**9**	123.8	63.1	**9**	168.4	85.8	**9**	213.0	108.5	**9**	257.5	131.2
40	35.6	18.2	**90**	80.2	40.9	**140**	124.7	63.6	**190**	169.3	86.3	**240**	213.8	109.0	**290**	258.4	131.7
1	36.5	18.6	**1**	81.1	41.3	**1**	125.6	64.0	**1**	170.2	86.7	**1**	214.7	109.4	**1**	259.3	132.1
2	37.4	19.1	**2**	82.0	41.8	**2**	126.5	64.5	**2**	171.1	87.2	**2**	215.6	109.9	**2**	260.2	132.6
3	38.3	19.5	**3**	82.9	42.2	**3**	127.4	64.9	**3**	172.0	87.6	**3**	216.5	110.3	**3**	261.1	133.0
4	39.2	20.0	**4**	83.8	42.7	**4**	128.3	65.4	**4**	172.9	88.1	**4**	217.4	110.8	**4**	262.0	133.5
5	40.1	20.4	**5**	84.6	43.1	**5**	129.2	65.8	**5**	173.7	88.5	**5**	218.3	111.2	**5**	262.8	133.9
6	41.0	20.9	**6**	85.5	43.6	**6**	130.1	66.3	**6**	174.6	89.0	**6**	219.2	111.7	**6**	263.7	134.4
7	41.9	21.3	**7**	86.4	44.0	**7**	131.0	66.7	**7**	175.5	89.4	**7**	220.1	112.1	**7**	264.6	134.8
8	42.8	21.8	**8**	87.3	44.5	**8**	131.9	67.2	**8**	176.4	89.9	**8**	221.0	112.6	**8**	265.5	135.3
9	43.7	22.2	**9**	88.2	44.9	**9**	132.8	67.6	**9**	177.3	90.3	**9**	221.9	113.0	**9**	266.4	135.7
D	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ
ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap

R

359 333° 315

181 207 225

TABELA 1

TÁBUAS DE CARTEAÇÃO

R ou φm

001 027 045

179 153 135

ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap	
D	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap
300	267.3	136.2	**350**	311.9	158.9	**400**	356.4	181.6	**450**	401.0	204.3	**500**	445.5	227.0	**550**	490.1	249.7
1	268.2	136.7	**1**	312.7	159.4	**1**	357.3	182.1	**1**	401.8	204.7	**1**	446.4	227.4	**1**	490.9	250.1
2	269.1	137.1	**2**	313.6	159.8	**2**	358.2	182.5	**2**	402.7	205.2	**2**	447.3	227.9	**2**	491.8	250.6
3	270.0	137.6	**3**	314.5	160.3	**3**	359.1	183.0	**3**	403.6	205.7	**3**	448.2	228.4	**3**	492.7	251.1
4	270.9	138.0	**4**	315.4	160.7	**4**	360.0	183.4	**4**	404.5	206.1	**4**	449.1	228.8	**4**	493.6	251.5
5	271.8	138.5	**5**	316.3	161.2	**5**	360.9	183.9	**5**	405.4	206.6	**5**	450.0	229.3	**5**	494.5	252.0
6	272.6	138.9	**6**	317.2	161.6	**6**	361.7	184.3	**6**	406.3	207.0	**6**	450.8	229.7	**6**	495.4	252.4
7	273.5	139.4	**7**	318.1	162.1	**7**	362.6	184.8	**7**	407.2	207.5	**7**	451.7	230.2	**7**	496.3	252.9
8	274.4	139.8	**8**	319.0	162.5	**8**	363.5	185.2	**8**	408.1	207.9	**8**	452.6	230.6	**8**	497.2	253.3
9	275.3	140.3	**9**	319.9	163.0	**9**	364.4	185.7	**9**	409.0	208.4	**9**	453.5	231.1	**9**	498.1	253.8
310	276.2	140.7	**360**	320.8	163.4	**410**	365.3	186.1	**460**	409.9	208.8	**510**	454.4	231.5	**560**	499.0	254.2
1	277.1	141.2	**1**	321.7	163.9	**1**	366.2	186.6	**1**	410.8	209.3	**1**	455.3	232.0	**1**	499.9	254.7
2	278.0	141.6	**2**	322.5	164.3	**2**	367.1	187.0	**2**	411.6	209.7	**2**	456.2	232.4	**2**	500.7	255.1
3	278.9	142.1	**3**	323.4	164.8	**3**	368.0	187.5	**3**	412.5	210.2	**3**	457.1	232.9	**3**	501.6	255.6
4	279.8	142.6	**4**	324.3	165.3	**4**	368.9	188.0	**4**	413.4	210.7	**4**	458.0	233.4	**4**	502.5	256.1
5	280.7	143.0	**5**	325.2	165.7	**5**	369.8	188.4	**5**	414.3	211.1	**5**	458.9	233.8	**5**	503.4	256.5
6	281.6	143.5	**6**	326.1	166.2	**6**	370.7	188.9	**6**	415.2	211.6	**6**	459.8	234.3	**6**	504.3	257.0
7	282.4	143.9	**7**	327.0	166.6	**7**	371.5	189.3	**7**	416.1	212.0	**7**	460.7	234.7	**7**	505.2	257.4
8	283.3	144.4	**8**	327.9	167.1	**8**	372.4	189.8	**8**	417.0	212.5	**8**	461.5	235.2	**8**	506.1	257.9
9	284.2	144.8	**9**	328.8	167.5	**9**	373.3	190.2	**9**	417.9	212.9	**9**	462.4	235.6	**9**	507.0	258.3
320	285.1	145.3	**370**	329.7	168.0	**420**	374.2	190.7	**470**	418.8	213.4	**520**	463.3	236.1	**570**	507.9	258.8
1	286.0	145.7	**1**	330.6	168.4	**1**	375.1	191.1	**1**	419.7	213.8	**1**	464.2	236.5	**1**	508.8	259.2
2	286.9	146.2	**2**	331.5	168.9	**2**	376.0	191.6	**2**	420.6	214.3	**2**	465.1	237.0	**2**	509.7	259.7
3	287.8	146.6	**3**	332.3	169.3	**3**	376.9	192.0	**3**	421.4	214.7	**3**	466.0	237.4	**3**	510.5	260.1
4	288.7	147.1	**4**	333.2	169.8	**4**	377.8	192.5	**4**	422.3	215.2	**4**	466.9	237.9	**4**	511.4	260.6
5	289.6	147.5	**5**	334.1	170.2	**5**	378.7	192.9	**5**	423.2	215.6	**5**	467.8	238.3	**5**	512.3	261.0
6	290.5	148.0	**6**	335.0	170.7	**6**	379.6	193.4	**6**	424.1	216.1	**6**	468.7	238.8	**6**	513.2	261.5
7	291.4	148.5	**7**	335.9	171.2	**7**	380.5	193.9	**7**	425.0	216.6	**7**	469.6	239.3	**7**	514.1	262.0
8	292.3	148.9	**8**	336.8	171.6	**8**	381.4	194.3	**8**	425.9	217.0	**8**	470.5	239.7	**8**	515.0	262.4
9	293.1	149.4	**9**	337.7	172.1	**9**	382.2	194.8	**9**	426.8	217.5	**9**	471.3	240.2	**9**	515.9	262.9
330	294.0	149.8	**380**	338.6	172.5	**430**	383.1	195.2	**480**	427.7	217.9	**530**	472.2	240.6	**580**	516.8	263.3
1	294.9	150.3	**1**	339.5	173.0	**1**	384.0	195.7	**1**	428.6	218.4	**1**	473.1	241.1	**1**	517.7	263.8
2	295.8	150.7	**2**	340.4	173.4	**2**	384.9	196.1	**2**	429.5	218.8	**2**	474.0	241.5	**2**	518.6	264.2
3	296.7	151.2	**3**	341.3	173.9	**3**	385.8	196.6	**3**	430.4	219.3	**3**	474.9	242.0	**3**	519.5	264.7
4	297.6	151.6	**4**	342.1	174.3	**4**	386.7	197.0	**4**	431.2	219.7	**4**	475.8	242.4	**4**	520.3	265.1
5	298.5	152.1	**5**	343.0	174.8	**5**	387.6	197.5	**5**	432.1	220.2	**5**	476.7	242.9	**5**	521.2	265.6
6	299.4	152.5	**6**	343.9	175.2	**6**	388.5	197.9	**6**	433.0	220.6	**6**	477.6	243.3	**6**	522.1	266.0
7	300.3	153.0	**7**	344.8	175.7	**7**	389.4	198.4	**7**	433.9	221.1	**7**	478.5	243.8	**7**	523.0	266.5
8	301.2	153.4	**8**	345.7	176.1	**8**	390.3	198.8	**8**	434.8	221.5	**8**	479.4	244.2	**8**	523.9	266.9
9	302.1	153.9	**9**	346.6	176.6	**9**	391.2	199.3	**9**	435.7	222.0	**9**	480.3	244.7	**9**	524.8	267.4
340	302.9	154.4	**390**	347.5	177.1	**440**	392.0	199.8	**490**	436.6	222.5	**540**	481.1	245.2	**590**	525.7	267.9
1	303.8	154.8	**1**	348.4	177.5	**1**	392.9	200.2	**1**	437.5	222.9	**1**	482.0	245.6	**1**	526.6	268.3
2	304.7	155.3	**2**	349.3	178.0	**2**	393.8	200.7	**2**	438.4	223.4	**2**	482.9	246.1	**2**	527.5	268.8
3	305.6	155.7	**3**	350.2	178.4	**3**	394.7	201.1	**3**	439.3	223.8	**3**	483.8	246.5	**3**	528.4	269.2
4	306.5	156.2	**4**	351.1	178.9	**4**	395.6	201.6	**4**	440.2	224.3	**4**	484.7	247.0	**4**	529.3	269.7
5	307.4	156.6	**5**	351.9	179.3	**5**	396.5	202.0	**5**	441.0	224.7	**5**	485.6	247.4	**5**	530.1	270.1
6	308.3	157.1	**6**	352.8	179.8	**6**	397.4	202.5	**6**	441.9	225.2	**6**	486.5	247.9	**6**	531.0	270.6
7	309.2	157.5	**7**	353.7	180.2	**7**	398.3	202.9	**7**	442.8	225.6	**7**	487.4	248.3	**7**	531.9	271.0
8	310.1	158.0	**8**	354.6	180.7	**8**	399.2	203.4	**8**	443.7	226.1	**8**	488.3	248.8	**8**	532.8	271.5
9	311.0	158.4	**9**	355.5	181.1	**9**	400.1	203.8	**9**	444.6	226.5	**9**	489.2	249.2	**9**	533.7	271.9
D	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ
ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap

271 297 315

269 243 225

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089 063° 045

091 117 135

R ou φm

ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap	
D	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap
0	0.0	0.0	**50**	44.1	23.5	**100**	88.3	46.9	**150**	132.4	70.4	**200**	176.6	93.9	**250**	220.7	117.4
1	0.9	0.5	**1**	45.0	23.9	**1**	89.2	47.4	**1**	133.3	70.9	**1**	177.5	94.4	**1**	221.6	117.8
2	1.8	0.9	**2**	45.9	24.4	**2**	90.1	47.9	**2**	134.2	71.4	**2**	178.4	94.8	**2**	222.5	118.3
3	2.6	1.4	**3**	46.8	24.9	**3**	90.9	48.4	**3**	135.1	71.8	**3**	179.2	95.3	**3**	223.4	118.8
4	3.5	1.9	**4**	47.7	25.4	**4**	91.8	48.8	**4**	136.0	72.3	**4**	180.1	95.8	**4**	224.3	119.2
5	4.4	2.3	**5**	48.6	25.8	**5**	92.7	49.3	**5**	136.9	72.8	**5**	181.0	96.2	**5**	225.2	119.7
6	5.3	2.8	**6**	49.4	26.3	**6**	93.6	49.8	**6**	137.7	73.2	**6**	181.9	96.7	**6**	226.0	120.2
7	6.2	3.3	**7**	50.3	26.8	**7**	94.5	50.2	**7**	138.6	73.7	**7**	182.8	97.2	**7**	226.9	120.7
8	7.1	3.8	**8**	51.2	27.2	**8**	95.4	50.7	**8**	139.5	74.2	**8**	183.7	97.7	**8**	227.8	121.1
9	7.9	4.2	**9**	52.1	27.7	**9**	96.2	51.2	**9**	140.4	74.6	**9**	184.5	98.1	**9**	228.7	121.6
10	8.8	4.7	**60**	53.0	28.2	**110**	97.1	51.6	**160**	141.3	75.1	**210**	185.4	98.6	**260**	229.6	122.1
1	9.7	5.2	**1**	53.9	28.6	**1**	98.0	52.1	**1**	142.2	75.6	**1**	186.3	99.1	**1**	230.4	122.5
2	10.6	5.6	**2**	54.7	29.1	**2**	98.9	52.6	**2**	143.0	76.1	**2**	187.2	99.5	**2**	231.3	123.0
3	11.5	6.1	**3**	55.6	29.6	**3**	99.8	53.1	**3**	143.9	76.5	**3**	188.1	100.0	**3**	232.2	123.5
4	12.4	6.6	**4**	56.5	30.0	**4**	100.7	53.5	**4**	144.8	77.0	**4**	189.0	100.5	**4**	233.1	123.9
5	13.2	7.0	**5**	57.4	30.5	**5**	101.5	54.0	**5**	145.7	77.5	**5**	189.8	100.9	**5**	234.0	124.4
6	14.1	7.5	**6**	58.3	31.0	**6**	102.4	54.5	**6**	146.6	77.9	**6**	190.7	101.4	**6**	234.9	124.9
7	15.0	8.0	**7**	59.2	31.5	**7**	103.3	54.9	**7**	147.5	78.4	**7**	191.6	101.9	**7**	235.7	125.3
8	15.9	8.5	**8**	60.0	31.9	**8**	104.2	55.4	**8**	148.3	78.9	**8**	192.5	102.3	**8**	236.6	125.8
9	16.8	8.9	**9**	60.9	32.4	**9**	105.1	55.9	**9**	149.2	79.3	**9**	193.4	102.8	**9**	237.5	126.3
20	17.7	9.4	**70**	61.8	32.9	**120**	106.0	56.3	**170**	150.1	79.8	**220**	194.2	103.3	**270**	238.4	126.8
1	18.5	9.9	**1**	62.7	33.3	**1**	106.8	56.8	**1**	151.0	80.3	**1**	195.1	103.8	**1**	239.3	127.2
2	19.4	10.3	**2**	63.6	33.8	**2**	107.7	57.3	**2**	151.9	80.7	**2**	196.0	104.2	**2**	240.2	127.7
3	20.3	10.8	**3**	64.5	34.3	**3**	108.6	57.7	**3**	152.7	81.2	**3**	196.9	104.7	**3**	241.0	128.2
4	21.2	11.3	**4**	65.3	34.7	**4**	109.5	58.2	**4**	153.6	81.7	**4**	197.8	105.2	**4**	241.9	128.6
5	22.1	11.7	**5**	66.2	35.2	**5**	110.4	58.7	**5**	154.5	82.2	**5**	198.7	105.6	**5**	242.8	129.1
6	23.0	12.2	**6**	67.1	35.7	**6**	111.3	59.2	**6**	155.4	82.6	**6**	199.5	106.1	**6**	243.7	129.6
7	23.8	12.7	**7**	68.0	36.1	**7**	112.1	59.6	**7**	156.3	83.1	**7**	200.4	106.6	**7**	244.6	130.0
8	24.7	13.1	**8**	68.9	36.6	**8**	113.0	60.1	**8**	157.2	83.6	**8**	201.3	107.0	**8**	245.5	130.5
9	25.6	13.6	**9**	69.8	37.1	**9**	113.9	60.6	**9**	158.0	84.0	**9**	202.2	107.5	**9**	246.3	131.0
30	26.5	14.1	**80**	70.6	37.6	**130**	114.8	61.0	**180**	158.9	84.5	**230**	203.1	108.0	**280**	247.2	131.5
1	27.4	14.6	**1**	71.5	38.0	**1**	115.7	61.5	**1**	159.8	85.0	**1**	204.0	108.4	**1**	248.1	131.9
2	28.3	15.0	**2**	72.4	38.5	**2**	116.5	62.0	**2**	160.7	85.4	**2**	204.8	108.9	**2**	249.0	132.4
3	29.1	15.5	**3**	73.3	39.0	**3**	117.4	62.4	**3**	161.6	85.9	**3**	205.7	109.4	**3**	249.9	132.9
4	30.0	16.0	**4**	74.2	39.4	**4**	118.3	62.9	**4**	162.5	86.4	**4**	206.6	109.9	**4**	250.8	133.3
5	30.9	16.4	**5**	75.1	39.9	**5**	119.2	63.4	**5**	163.3	86.9	**5**	207.5	110.3	**5**	251.6	133.8
6	31.8	16.9	**6**	75.9	40.4	**6**	120.1	63.8	**6**	164.2	87.3	**6**	208.4	110.8	**6**	252.5	134.3
7	32.7	17.4	**7**	76.8	40.8	**7**	121.0	64.3	**7**	165.1	87.8	**7**	209.3	111.3	**7**	253.4	134.7
8	33.6	17.8	**8**	77.7	41.3	**8**	121.8	64.8	**8**	166.0	88.3	**8**	210.1	111.7	**8**	254.3	135.2
9	34.4	18.3	**9**	78.6	41.8	**9**	122.7	65.3	**9**	166.9	88.7	**9**	211.0	112.2	**9**	255.2	135.7
40	35.3	18.8	**90**	79.5	42.3	**140**	123.6	65.7	**190**	167.8	89.2	**240**	211.9	112.7	**290**	256.1	136.1
1	36.2	19.2	**1**	80.3	42.7	**1**	124.5	66.2	**1**	168.6	89.7	**1**	212.8	113.1	**1**	256.9	136.6
2	37.1	19.7	**2**	81.2	43.2	**2**	125.4	66.7	**2**	169.5	90.1	**2**	213.7	113.6	**2**	257.8	137.1
3	38.0	20.2	**3**	82.1	43.7	**3**	126.3	67.1	**3**	170.4	90.6	**3**	214.6	114.1	**3**	258.7	137.6
4	38.8	20.7	**4**	83.0	44.1	**4**	127.1	67.6	**4**	171.3	91.1	**4**	215.4	114.6	**4**	259.6	138.0
5	39.7	21.1	**5**	83.9	44.6	**5**	128.0	68.1	**5**	172.2	91.5	**5**	216.3	115.0	**5**	260.5	138.5
6	40.6	21.6	**6**	84.8	45.1	**6**	128.9	68.5	**6**	173.1	92.0	**6**	217.2	115.5	**6**	261.4	139.0
7	41.5	22.1	**7**	85.6	45.5	**7**	129.8	69.0	**7**	173.9	92.5	**7**	218.1	116.0	**7**	262.2	139.4
8	42.4	22.5	**8**	86.5	46.0	**8**	130.7	69.5	**8**	174.8	93.0	**8**	219.0	116.4	**8**	263.1	139.9
9	43.3	23.0	**9**	87.4	46.5	**9**	131.6	70.0	**9**	175.7	93.4	**9**	219.9	116.9	**9**	264.0	140.4
D	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ
ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap

ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap	
D	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap
300	264.9	140.8	**350**	309.0	164.3	**400**	353.2	187.8	**450**	397.3	211.3	**500**	441.5	234.7	**550**	485.6	258.2
1	265.8	141.3	**1**	309.9	164.8	**1**	354.1	188.3	**1**	398.2	211.7	**1**	442.4	235.2	**1**	486.5	258.7
2	266.7	141.8	**2**	310.8	165.3	**2**	354.9	188.7	**2**	399.1	212.2	**2**	443.2	235.7	**2**	487.4	259.1
3	267.5	142.2	**3**	311.7	165.7	**3**	355.8	189.2	**3**	400.0	212.7	**3**	444.1	236.1	**3**	488.3	259.6
4	268.4	142.7	**4**	312.6	166.2	**4**	356.7	189.7	**4**	400.9	213.1	**4**	445.0	236.6	**4**	489.2	260.1
5	269.3	143.2	**5**	313.4	166.7	**5**	357.6	190.1	**5**	401.7	213.6	**5**	445.9	237.1	**5**	490.0	260.6
6	270.2	143.7	**6**	314.3	167.1	**6**	358.5	190.6	**6**	402.6	214.1	**6**	446.8	237.6	**6**	490.9	261.0
7	271.1	144.1	**7**	315.2	167.6	**7**	359.4	191.1	**7**	403.5	214.5	**7**	447.7	238.0	**7**	491.8	261.5
8	271.9	144.6	**8**	316.1	168.1	**8**	360.2	191.5	**8**	404.4	215.0	**8**	448.5	238.5	**8**	492.7	262.0
9	272.8	145.1	**9**	317.0	168.5	**9**	361.1	192.0	**9**	405.3	215.5	**9**	449.4	239.0	**9**	493.6	262.4
310	273.7	145.5	**360**	317.9	169.0	**410**	362.0	192.5	**460**	406.2	216.0	**510**	450.3	239.4	**560**	494.5	262.9
1	274.6	146.0	**1**	318.7	169.5	**1**	362.9	193.0	**1**	407.0	216.4	**1**	451.2	239.9	**1**	495.3	263.4
2	275.5	146.5	**2**	319.6	169.9	**2**	363.8	193.4	**2**	407.9	216.9	**2**	452.1	240.4	**2**	496.2	263.8
3	276.4	146.9	**3**	320.5	170.4	**3**	364.7	193.9	**3**	408.8	217.4	**3**	453.0	240.8	**3**	497.1	264.3
4	277.2	147.4	**4**	321.4	170.9	**4**	365.5	194.4	**4**	409.7	217.8	**4**	453.8	241.3	**4**	498.0	264.8
5	278.1	147.9	**5**	322.3	171.4	**5**	366.4	194.8	**5**	410.6	218.3	**5**	454.7	241.8	**5**	498.9	265.3
6	279.0	148.4	**6**	323.2	171.8	**6**	367.3	195.3	**6**	411.5	218.8	**6**	455.6	242.2	**6**	499.7	265.7
7	279.9	148.8	**7**	324.0	172.3	**7**	368.2	195.8	**7**	412.3	219.2	**7**	456.5	242.7	**7**	500.6	266.2
8	280.8	149.3	**8**	324.9	172.8	**8**	369.1	196.2	**8**	413.2	219.7	**8**	457.4	243.2	**8**	501.5	266.7
9	281.7	149.8	**9**	325.8	173.2	**9**	370.0	196.7	**9**	414.1	220.2	**9**	458.2	243.7	**9**	502.4	267.1
320	282.5	150.2	**370**	326.7	173.7	**420**	370.8	197.2	**470**	415.0	220.7	**520**	459.1	244.1	**570**	503.3	267.6
1	283.4	150.7	**1**	327.6	174.2	**1**	371.7	197.6	**1**	415.9	221.1	**1**	460.0	244.6	**1**	504.2	268.1
2	284.3	151.2	**2**	328.5	174.6	**2**	372.6	198.1	**2**	416.8	221.6	**2**	460.9	245.1	**2**	505.0	268.5
3	285.2	151.6	**3**	329.3	175.1	**3**	373.5	198.6	**3**	417.6	222.1	**3**	461.8	245.5	**3**	505.9	269.0
4	286.1	152.1	**4**	330.2	175.6	**4**	374.4	199.1	**4**	418.5	222.5	**4**	462.7	246.0	**4**	506.8	269.5
5	287.0	152.6	**5**	331.1	176.1	**5**	375.3	199.5	**5**	419.4	223.0	**5**	463.5	246.5	**5**	507.7	269.9
6	287.8	153.0	**6**	332.0	176.5	**6**	376.1	200.0	**6**	420.3	223.5	**6**	464.4	246.9	**6**	508.6	270.4
7	288.7	153.5	**7**	332.9	177.0	**7**	377.0	200.5	**7**	421.2	223.9	**7**	465.3	247.4	**7**	509.5	270.9
8	289.6	154.0	**8**	333.8	177.5	**8**	377.9	200.9	**8**	422.0	224.4	**8**	466.2	247.9	**8**	510.3	271.4
9	290.5	154.5	**9**	334.6	177.9	**9**	378.8	201.4	**9**	422.9	224.9	**9**	467.1	248.4	**9**	511.2	271.8
330	291.4	154.9	**380**	335.5	178.4	**430**	379.7	201.9	**480**	423.8	225.3	**530**	468.0	248.8	**580**	512.1	272.3
1	292.3	155.4	**1**	336.4	178.9	**1**	380.6	202.3	**1**	424.7	225.8	**1**	468.8	249.3	**1**	513.0	272.8
2	293.1	155.9	**2**	337.3	179.3	**2**	381.4	202.8	**2**	425.6	226.3	**2**	469.7	249.8	**2**	513.9	273.2
3	294.0	156.3	**3**	338.2	179.8	**3**	382.3	203.3	**3**	426.5	226.8	**3**	470.6	250.2	**3**	514.8	273.7
4	294.9	156.8	**4**	339.1	180.3	**4**	383.2	203.8	**4**	427.3	227.2	**4**	471.5	250.7	**4**	515.6	274.2
5	295.8	157.3	**5**	339.9	180.7	**5**	384.1	204.2	**5**	428.2	227.7	**5**	472.4	251.2	**5**	516.5	274.6
6	296.7	157.7	**6**	340.8	181.2	**6**	385.0	204.7	**6**	429.1	228.2	**6**	473.3	251.6	**6**	517.4	275.1
7	297.6	158.2	**7**	341.7	181.7	**7**	385.8	205.2	**7**	430.0	228.6	**7**	474.1	252.1	**7**	518.3	275.6
8	298.4	158.7	**8**	342.6	182.2	**8**	386.7	205.6	**8**	430.9	229.1	**8**	475.0	252.6	**8**	519.2	276.0
9	299.3	159.2	**9**	343.5	182.6	**9**	387.6	206.1	**9**	431.8	229.6	**9**	475.9	253.0	**9**	520.1	276.5
340	300.2	159.6	**390**	344.3	183.1	**440**	388.5	206.6	**490**	432.6	230.0	**540**	476.8	253.5	**590**	520.9	277.0
1	301.1	160.1	**1**	345.2	183.6	**1**	389.4	207.0	**1**	433.5	230.5	**1**	477.7	254.0	**1**	521.8	277.5
2	302.0	160.6	**2**	346.1	184.0	**2**	390.3	207.5	**2**	434.4	231.0	**2**	478.6	254.5	**2**	522.7	277.9
3	302.9	161.0	**3**	347.0	184.5	**3**	391.1	208.0	**3**	435.3	231.4	**3**	479.4	254.9	**3**	523.6	278.4
4	303.7	161.5	**4**	347.9	185.0	**4**	392.0	208.4	**4**	436.2	231.9	**4**	480.3	255.4	**4**	524.5	278.9
5	304.6	162.0	**5**	348.8	185.4	**5**	392.9	208.9	**5**	437.1	232.4	**5**	481.2	255.9	**5**	525.4	279.3
6	305.5	162.4	**6**	349.6	185.9	**6**	393.8	209.4	**6**	437.9	232.9	**6**	482.1	256.3	**6**	526.2	279.8
7	306.4	162.9	**7**	350.5	186.4	**7**	394.7	209.9	**7**	438.8	233.3	**7**	483.0	256.8	**7**	527.1	280.3
8	307.3	163.4	**8**	351.4	186.8	**8**	395.6	210.3	**8**	439.7	233.8	**8**	483.9	257.3	**8**	528.0	280.7
9	308.1	163.8	**9**	352.3	187.3	**9**	396.4	210.8	**9**	440.6	234.3	**9**	484.7	257.7	**9**	528.9	281.2
D	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ
ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap

ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap	
D	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap
0	0.0	0.0	**50**	43.7	24.2	**100**	87.5	48.5	**150**	131.2	72.7	**200**	174.9	97.0	**250**	218.7	121.2
1	0.9	0.5	**1**	44.6	24.7	**1**	88.3	49.0	**1**	132.1	73.2	**1**	175.8	97.4	**1**	219.5	121.7
2	1.7	1.0	**2**	45.5	25.2	**2**	89.2	49.5	**2**	132.9	73.7	**2**	176.7	97.9	**2**	220.4	122.2
3	2.6	1.5	**3**	46.4	25.7	**3**	90.1	49.9	**3**	133.8	74.2	**3**	177.5	98.4	**3**	221.3	122.7
4	3.5	1.9	**4**	47.2	26.2	**4**	91.0	50.4	**4**	134.7	74.7	**4**	178.4	98.9	**4**	222.2	123.1
5	4.4	2.4	**5**	48.1	26.7	**5**	91.8	50.9	**5**	135.6	75.1	**5**	179.3	99.4	**5**	223.0	123.6
6	5.2	2.9	**6**	49.0	27.1	**6**	92.7	51.4	**6**	136.4	75.6	**6**	180.2	99.9	**6**	223.9	124.1
7	6.1	3.4	**7**	49.9	27.6	**7**	93.6	51.9	**7**	137.3	76.1	**7**	181.0	100.4	**7**	224.8	124.6
8	7.0	3.9	**8**	50.7	28.1	**8**	94.5	52.4	**8**	138.2	76.6	**8**	181.9	100.8	**8**	225.7	125.1
9	7.9	4.4	**9**	51.6	28.6	**9**	95.3	52.8	**9**	139.1	77.1	**9**	182.8	101.3	**9**	226.5	125.6
10	8.7	4.8	**60**	52.5	29.1	**110**	96.2	53.3	**160**	139.9	77.6	**210**	183.7	101.8	**260**	227.4	126.1
1	9.6	5.3	**1**	53.4	29.6	**1**	97.1	53.8	**1**	140.8	78.1	**1**	184.5	102.3	**1**	228.3	126.5
2	10.5	5.8	**2**	54.2	30.1	**2**	98.0	54.3	**2**	141.7	78.5	**2**	185.4	102.8	**2**	229.2	127.0
3	11.4	6.3	**3**	55.1	30.5	**3**	98.8	54.8	**3**	142.6	79.0	**3**	186.3	103.3	**3**	230.0	127.5
4	12.2	6.8	**4**	56.0	31.0	**4**	99.7	55.3	**4**	143.4	79.5	**4**	187.2	103.7	**4**	230.9	128.0
5	13.1	7.3	**5**	56.9	31.5	**5**	100.6	55.8	**5**	144.3	80.0	**5**	188.0	104.2	**5**	231.8	128.5
6	14.0	7.8	**6**	57.7	32.0	**6**	101.5	56.2	**6**	145.2	80.5	**6**	188.9	104.7	**6**	232.6	129.0
7	14.9	8.2	**7**	58.6	32.5	**7**	102.3	56.7	**7**	146.1	81.0	**7**	189.8	105.2	**7**	233.5	129.4
8	15.7	8.7	**8**	59.5	33.0	**8**	103.2	57.2	**8**	146.9	81.4	**8**	190.7	105.7	**8**	234.4	129.9
9	16.6	9.2	**9**	60.3	33.5	**9**	104.1	57.7	**9**	147.8	81.9	**9**	191.5	106.2	**9**	235.3	130.4
20	17.5	9.7	**70**	61.2	33.9	**120**	105.0	58.2	**170**	148.7	82.4	**220**	192.4	106.7	**270**	236.1	130.9
1	18.4	10.2	**1**	62.1	34.4	**1**	105.8	58.7	**1**	149.6	82.9	**1**	193.3	107.1	**1**	237.0	131.4
2	19.2	10.7	**2**	63.0	34.9	**2**	106.7	59.1	**2**	150.4	83.4	**2**	194.2	107.6	**2**	237.9	131.9
3	20.1	11.2	**3**	63.8	35.4	**3**	107.6	59.6	**3**	151.3	83.9	**3**	195.0	108.1	**3**	238.8	132.4
4	21.0	11.6	**4**	64.7	35.9	**4**	108.5	60.1	**4**	152.2	84.4	**4**	195.9	108.6	**4**	239.6	132.8
5	21.9	12.1	**5**	65.6	36.4	**5**	109.3	60.6	**5**	153.1	84.8	**5**	196.8	109.1	**5**	240.5	133.3
6	22.7	12.6	**6**	66.5	36.8	**6**	110.2	61.1	**6**	153.9	85.3	**6**	197.7	109.6	**6**	241.4	133.8
7	23.6	13.1	**7**	67.3	37.3	**7**	111.1	61.6	**7**	154.8	85.8	**7**	198.5	110.1	**7**	242.3	134.3
8	24.5	13.6	**8**	68.2	37.8	**8**	112.0	62.1	**8**	155.7	86.3	**8**	199.4	110.5	**8**	243.1	134.8
9	25.4	14.1	**9**	69.1	38.3	**9**	112.8	62.5	**9**	156.6	86.8	**9**	200.3	111.0	**9**	244.0	135.3
30	26.2	14.5	**80**	70.0	38.8	**130**	113.7	63.0	**180**	157.4	87.3	**230**	201.2	111.5	**280**	244.9	135.7
1	27.1	15.0	**1**	70.8	39.3	**1**	114.6	63.5	**1**	158.3	87.8	**1**	202.0	112.0	**1**	245.8	136.2
2	28.0	15.5	**2**	71.7	39.8	**2**	115.4	64.0	**2**	159.2	88.2	**2**	202.9	112.5	**2**	246.6	136.7
3	28.9	16.0	**3**	72.6	40.2	**3**	116.3	64.5	**3**	160.1	88.7	**3**	203.8	113.0	**3**	247.5	137.2
4	29.7	16.5	**4**	73.5	40.7	**4**	117.2	65.0	**4**	160.9	89.2	**4**	204.7	113.4	**4**	248.4	137.7
5	30.6	17.0	**5**	74.3	41.2	**5**	118.1	65.4	**5**	161.8	89.7	**5**	205.5	113.9	**5**	249.3	138.2
6	31.5	17.5	**6**	75.2	41.7	**6**	118.9	65.9	**6**	162.7	90.2	**6**	206.4	114.4	**6**	250.1	138.7
7	32.4	17.9	**7**	76.1	42.2	**7**	119.8	66.4	**7**	163.6	90.7	**7**	207.3	114.9	**7**	251.0	139.1
8	33.2	18.4	**8**	77.0	42.7	**8**	120.7	66.9	**8**	164.4	91.1	**8**	208.2	115.4	**8**	251.9	139.6
9	34.1	18.9	**9**	77.8	43.1	**9**	121.6	67.4	**9**	165.3	91.6	**9**	209.0	115.9	**9**	252.8	140.1
40	35.0	19.4	**90**	78.7	43.6	**140**	122.4	67.9	**190**	166.2	92.1	**240**	209.9	116.4	**290**	253.6	140.6
1	35.9	19.9	**1**	79.6	44.1	**1**	123.3	68.4	**1**	167.1	92.6	**1**	210.8	116.8	**1**	254.5	141.1
2	36.7	20.4	**2**	80.5	44.6	**2**	124.2	68.8	**2**	167.9	93.1	**2**	211.7	117.3	**2**	255.4	141.6
3	37.6	20.8	**3**	81.3	45.1	**3**	125.1	69.3	**3**	168.8	93.6	**3**	212.5	117.8	**3**	256.3	142.0
4	38.5	21.3	**4**	82.2	45.6	**4**	125.9	69.8	**4**	169.7	94.1	**4**	213.4	118.3	**4**	257.1	142.5
5	39.4	21.8	**5**	83.1	46.1	**5**	126.8	70.3	**5**	170.6	94.5	**5**	214.3	118.8	**5**	258.0	143.0
6	40.2	22.3	**6**	84.0	46.5	**6**	127.7	70.8	**6**	171.4	95.0	**6**	215.2	119.3	**6**	258.9	143.5
7	41.1	22.8	**7**	84.8	47.0	**7**	128.6	71.3	**7**	172.3	95.5	**7**	216.0	119.7	**7**	259.8	144.0
8	42.0	23.3	**8**	85.7	47.5	**8**	129.4	71.8	**8**	173.2	96.0	**8**	216.9	120.2	**8**	260.6	144.5
9	42.9	23.8	**9**	86.6	48.0	**9**	130.3	72.2	**9**	174.0	96.5	**9**	217.8	120.7	**9**	261.5	145.0
D	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ
ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap

ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap	
D	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap
300	262.4	145.4	**350**	306.1	169.7	**400**	349.8	193.9	**450**	393.6	218.2	**500**	437.3	242.4	**550**	481.0	266.6
1	263.3	145.9	**1**	307.0	170.2	**1**	350.7	194.4	**1**	394.5	218.6	**1**	438.2	242.9	**1**	481.9	267.1
2	264.1	146.4	**2**	307.9	170.7	**2**	351.6	194.9	**2**	395.3	219.1	**2**	439.1	243.4	**2**	482.8	267.6
3	265.0	146.9	**3**	308.7	171.1	**3**	352.5	195.4	**3**	396.2	219.6	**3**	439.9	243.9	**3**	483.7	268.1
4	265.9	147.4	**4**	309.6	171.6	**4**	353.3	195.9	**4**	397.1	220.1	**4**	440.8	244.3	**4**	484.5	268.6
5	266.8	147.9	**5**	310.5	172.1	**5**	354.2	196.3	**5**	398.0	220.6	**5**	441.7	244.8	**5**	485.4	269.1
6	267.6	148.4	**6**	311.4	172.6	**6**	355.1	196.8	**6**	398.8	221.1	**6**	442.6	245.3	**6**	486.3	269.6
7	268.5	148.8	**7**	312.2	173.1	**7**	356.0	197.3	**7**	399.7	221.6	**7**	443.4	245.8	**7**	487.2	270.0
8	269.4	149.3	**8**	313.1	173.6	**8**	356.8	197.8	**8**	400.6	222.0	**8**	444.3	246.3	**8**	488.0	270.5
9	270.3	149.8	**9**	314.0	174.0	**9**	357.7	198.3	**9**	401.5	222.5	**9**	445.2	246.8	**9**	488.9	271.0
310	271.1	150.3	**360**	314.9	174.5	**410**	358.6	198.8	**460**	402.3	223.0	**510**	446.1	247.3	**560**	489.8	271.5
1	272.0	150.8	**1**	315.7	175.0	**1**	359.5	199.3	**1**	403.2	223.5	**1**	446.9	247.7	**1**	490.7	272.0
2	272.9	151.3	**2**	316.6	175.5	**2**	360.3	199.7	**2**	404.1	224.0	**2**	447.8	248.2	**2**	491.5	272.5
3	273.8	151.7	**3**	317.5	176.0	**3**	361.2	200.2	**3**	404.9	224.5	**3**	448.7	248.7	**3**	492.4	272.9
4	274.6	152.2	**4**	318.4	176.5	**4**	362.1	200.7	**4**	405.8	225.0	**4**	449.6	249.2	**4**	493.3	273.4
5	275.5	152.7	**5**	319.2	177.0	**5**	363.0	201.2	**5**	406.7	225.4	**5**	450.4	249.7	**5**	494.2	273.9
6	276.4	153.2	**6**	320.1	177.4	**6**	363.8	201.7	**6**	407.6	225.9	**6**	451.3	250.2	**6**	495.0	274.4
7	277.3	153.7	**7**	321.0	177.9	**7**	364.7	202.2	**7**	408.4	226.4	**7**	452.2	250.6	**7**	495.9	274.9
8	278.1	154.2	**8**	321.9	178.4	**8**	365.6	202.7	**8**	409.3	226.9	**8**	453.1	251.1	**8**	496.8	275.4
9	279.0	154.7	**9**	322.7	178.9	**9**	366.5	203.1	**9**	410.2	227.4	**9**	453.9	251.6	**9**	497.7	275.9
320	279.9	155.1	**370**	323.6	179.4	**420**	367.3	203.6	**470**	411.1	227.9	**520**	454.8	252.1	**570**	498.5	276.3
1	280.8	155.6	**1**	324.5	179.9	**1**	368.2	204.1	**1**	411.9	228.3	**1**	455.7	252.6	**1**	499.4	276.8
2	281.6	156.1	**2**	325.4	180.3	**2**	369.1	204.6	**2**	412.8	228.8	**2**	456.6	253.1	**2**	500.3	277.3
3	282.5	156.6	**3**	326.2	180.8	**3**	370.0	205.1	**3**	413.7	229.3	**3**	457.4	253.6	**3**	501.2	277.8
4	283.4	157.1	**4**	327.1	181.3	**4**	370.8	205.6	**4**	414.6	229.8	**4**	458.3	254.0	**4**	502.0	278.3
5	284.3	157.6	**5**	328.0	181.8	**5**	371.7	206.0	**5**	415.4	230.3	**5**	459.2	254.5	**5**	502.9	278.8
6	285.1	158.0	**6**	328.9	182.3	**6**	372.6	206.5	**6**	416.3	230.8	**6**	460.0	255.0	**6**	503.8	279.3
7	286.0	158.5	**7**	329.7	182.8	**7**	373.5	207.0	**7**	417.2	231.3	**7**	460.9	255.5	**7**	504.7	279.7
8	286.9	159.0	**8**	330.6	183.3	**8**	374.3	207.5	**8**	418.1	231.7	**8**	461.8	256.0	**8**	505.5	280.2
9	287.7	159.5	**9**	331.5	183.7	**9**	375.2	208.0	**9**	418.9	232.2	**9**	462.7	256.5	**9**	506.4	280.7
330	288.6	160.0	**380**	332.4	184.2	**430**	376.1	208.5	**480**	419.8	232.7	**530**	463.5	256.9	**580**	507.3	281.2
1	289.5	160.5	**1**	333.2	184.7	**1**	377.0	209.0	**1**	420.7	233.2	**1**	464.4	257.4	**1**	508.2	281.7
2	290.4	161.0	**2**	334.1	185.2	**2**	377.8	209.4	**2**	421.6	233.7	**2**	465.3	257.9	**2**	509.0	282.2
3	291.2	161.4	**3**	335.0	185.7	**3**	378.7	209.9	**3**	422.4	234.2	**3**	466.2	258.4	**3**	509.9	282.6
4	292.1	161.9	**4**	335.9	186.2	**4**	379.6	210.4	**4**	423.3	234.6	**4**	467.0	258.9	**4**	510.8	283.1
5	293.0	162.4	**5**	336.7	186.7	**5**	380.5	210.9	**5**	424.2	235.1	**5**	467.9	259.4	**5**	511.7	283.6
6	293.9	162.9	**6**	337.6	187.1	**6**	381.3	211.4	**6**	425.1	235.6	**6**	468.8	259.9	**6**	512.5	284.1
7	294.7	163.4	**7**	338.5	187.6	**7**	382.2	211.9	**7**	425.9	236.1	**7**	469.7	260.3	**7**	513.4	284.6
8	295.6	163.9	**8**	339.4	188.1	**8**	383.1	212.3	**8**	426.8	236.6	**8**	470.5	260.8	**8**	514.3	285.1
9	296.5	164.4	**9**	340.2	188.6	**9**	384.0	212.8	**9**	427.7	237.1	**9**	471.4	261.3	**9**	515.2	285.6
340	297.4	164.8	**390**	341.1	189.1	**440**	384.8	213.3	**490**	428.6	237.6	**540**	472.3	261.8	**590**	516.0	286.0
1	298.2	165.3	**1**	342.0	189.6	**1**	385.7	213.8	**1**	429.4	238.0	**1**	473.2	262.3	**1**	516.9	286.5
2	299.1	165.8	**2**	342.9	190.0	**2**	386.6	214.3	**2**	430.3	238.5	**2**	474.0	262.8	**2**	517.8	287.0
3	300.0	166.3	**3**	343.7	190.5	**3**	387.5	214.8	**3**	431.2	239.0	**3**	474.9	263.3	**3**	518.6	287.5
4	300.9	166.8	**4**	344.6	191.0	**4**	388.3	215.3	**4**	432.1	239.5	**4**	475.8	263.7	**4**	519.5	288.0
5	301.7	167.3	**5**	345.5	191.5	**5**	389.2	215.7	**5**	432.9	240.0	**5**	476.7	264.2	**5**	520.4	288.5
6	302.6	167.7	**6**	346.3	192.0	**6**	390.1	216.2	**6**	433.8	240.5	**6**	477.5	264.7	**6**	521.3	288.9
7	303.5	168.2	**7**	347.2	192.5	**7**	391.0	216.7	**7**	434.7	241.0	**7**	478.4	265.2	**7**	522.1	289.4
8	304.4	168.7	**8**	348.1	193.0	**8**	391.8	217.2	**8**	435.6	241.4	**8**	479.3	265.7	**8**	523.0	289.9
9	305.2	169.2	**9**	349.0	193.4	**9**	392.7	217.7	**9**	436.4	241.9	**9**	480.2	266.2	**9**	523.9	290.4
D	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ
ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap

ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap	
D	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap
0	0.0	0.0	**50**	43.3	25.0	**100**	86.6	50.0	**150**	129.9	75.0	**200**	173.2	100.0	**250**	216.5	125.0
1	0.9	0.5	**1**	44.2	25.5	**1**	87.5	50.5	**1**	130.8	75.5	**1**	174.1	100.5	**1**	217.4	125.5
2	1.7	1.0	**2**	45.0	26.0	**2**	88.3	51.0	**2**	131.6	76.0	**2**	174.9	101.0	**2**	218.2	126.0
3	2.6	1.5	**3**	45.9	26.5	**3**	89.2	51.5	**3**	132.5	76.5	**3**	175.8	101.5	**3**	219.1	126.5
4	3.5	2.0	**4**	46.8	27.0	**4**	90.1	52.0	**4**	133.4	77.0	**4**	176.7	102.0	**4**	220.0	127.0
5	4.3	2.5	**5**	47.6	27.5	**5**	90.9	52.5	**5**	134.2	77.5	**5**	177.5	102.5	**5**	220.8	127.5
6	5.2	3.0	**6**	48.5	28.0	**6**	91.8	53.0	**6**	135.1	78.0	**6**	178.4	103.0	**6**	221.7	128.0
7	6.1	3.5	**7**	49.4	28.5	**7**	92.7	53.5	**7**	136.0	78.5	**7**	179.3	103.5	**7**	222.6	128.5
8	6.9	4.0	**8**	50.2	29.0	**8**	93.5	54.0	**8**	136.8	79.0	**8**	180.1	104.0	**8**	223.4	129.0
9	7.8	4.5	**9**	51.1	29.5	**9**	94.4	54.5	**9**	137.7	79.5	**9**	181.0	104.5	**9**	224.3	129.5
10	8.7	5.0	**60**	52.0	30.0	**110**	95.3	55.0	**160**	138.6	80.0	**210**	181.9	105.0	**260**	225.2	130.0
1	9.5	5.5	**1**	52.8	30.5	**1**	96.1	55.5	**1**	139.4	80.5	**1**	182.7	105.5	**1**	226.0	130.5
2	10.4	6.0	**2**	53.7	31.0	**2**	97.0	56.0	**2**	140.3	81.0	**2**	183.6	106.0	**2**	226.9	131.0
3	11.3	6.5	**3**	54.6	31.5	**3**	97.9	56.5	**3**	141.2	81.5	**3**	184.5	106.5	**3**	227.8	131.5
4	12.1	7.0	**4**	55.4	32.0	**4**	98.7	57.0	**4**	142.0	82.0	**4**	185.3	107.0	**4**	228.6	132.0
5	13.0	7.5	**5**	56.3	32.5	**5**	99.6	57.5	**5**	142.9	82.5	**5**	186.2	107.5	**5**	229.5	132.5
6	13.9	8.0	**6**	57.2	33.0	**6**	100.5	58.0	**6**	143.8	83.0	**6**	187.1	108.0	**6**	230.4	133.0
7	14.7	8.5	**7**	58.0	33.5	**7**	101.3	58.5	**7**	144.6	83.5	**7**	187.9	108.5	**7**	231.2	133.5
8	15.6	9.0	**8**	58.9	34.0	**8**	102.2	59.0	**8**	145.5	84.0	**8**	188.8	109.0	**8**	232.1	134.0
9	16.5	9.5	**9**	59.8	34.5	**9**	103.1	59.5	**9**	146.4	84.5	**9**	189.7	109.5	**9**	233.0	134.5
20	17.3	10.0	**70**	60.6	35.0	**120**	103.9	60.0	**170**	147.2	85.0	**220**	190.5	110.0	**270**	233.8	135.0
1	18.2	10.5	**1**	61.5	35.5	**1**	104.8	60.5	**1**	148.1	85.5	**1**	191.4	110.5	**1**	234.7	135.5
2	19.1	11.0	**2**	62.4	36.0	**2**	105.7	61.0	**2**	149.0	86.0	**2**	192.3	111.0	**2**	235.6	136.0
3	19.9	11.5	**3**	63.2	36.5	**3**	106.5	61.5	**3**	149.8	86.5	**3**	193.1	111.5	**3**	236.4	136.5
4	20.8	12.0	**4**	64.1	37.0	**4**	107.4	62.0	**4**	150.7	87.0	**4**	194.0	112.0	**4**	237.3	137.0
5	21.7	12.5	**5**	65.0	37.5	**5**	108.3	62.5	**5**	151.6	87.5	**5**	194.9	112.5	**5**	238.2	137.5
6	22.5	13.0	**6**	65.8	38.0	**6**	109.1	63.0	**6**	152.4	88.0	**6**	195.7	113.0	**6**	239.0	138.0
7	23.4	13.5	**7**	66.7	38.5	**7**	110.0	63.5	**7**	153.3	88.5	**7**	196.6	113.5	**7**	239.9	138.5
8	24.2	14.0	**8**	67.5	39.0	**8**	110.9	64.0	**8**	154.2	89.0	**8**	197.5	114.0	**8**	240.8	139.0
9	25.1	14.5	**9**	68.4	39.5	**9**	111.7	64.5	**9**	155.0	89.5	**9**	198.3	114.5	**9**	241.6	139.5
30	26.0	15.0	**80**	69.3	40.0	**130**	112.6	65.0	**180**	155.9	90.0	**230**	199.2	115.0	**280**	242.5	140.0
1	26.8	15.5	**1**	70.1	40.5	**1**	113.4	65.5	**1**	156.8	90.5	**1**	200.1	115.5	**1**	243.4	140.5
2	27.7	16.0	**2**	71.0	41.0	**2**	114.3	66.0	**2**	157.6	91.0	**2**	200.9	116.0	**2**	244.2	141.0
3	28.6	16.5	**3**	71.9	41.5	**3**	115.2	66.5	**3**	158.5	91.5	**3**	201.8	116.5	**3**	245.1	141.5
4	29.4	17.0	**4**	72.7	42.0	**4**	116.0	67.0	**4**	159.3	92.0	**4**	202.6	117.0	**4**	246.0	142.0
5	30.3	17.5	**5**	73.6	42.5	**5**	116.9	67.5	**5**	160.2	92.5	**5**	203.5	117.5	**5**	246.8	142.5
6	31.2	18.0	**6**	74.5	43.0	**6**	117.8	68.0	**6**	161.1	93.0	**6**	204.4	118.0	**6**	247.7	143.0
7	32.0	18.5	**7**	75.3	43.5	**7**	118.6	68.5	**7**	161.9	93.5	**7**	205.2	118.5	**7**	248.5	143.5
8	32.9	19.0	**8**	76.2	44.0	**8**	119.5	69.0	**8**	162.8	94.0	**8**	206.1	119.0	**8**	249.4	144.0
9	33.8	19.5	**9**	77.1	44.5	**9**	120.4	69.5	**9**	163.7	94.5	**9**	207.0	119.5	**9**	250.3	144.5
40	34.6	20.0	**90**	77.9	45.0	**140**	121.2	70.0	**190**	164.5	95.0	**240**	207.8	120.0	**290**	251.1	145.0
1	35.5	20.5	**1**	78.8	45.5	**1**	122.1	70.5	**1**	165.4	95.5	**1**	208.7	120.5	**1**	252.0	145.5
2	36.4	21.0	**2**	79.7	46.0	**2**	123.0	71.0	**2**	166.3	96.0	**2**	209.6	121.0	**2**	252.9	146.0
3	37.2	21.5	**3**	80.5	46.5	**3**	123.8	71.5	**3**	167.1	96.5	**3**	210.4	121.5	**3**	253.7	146.5
4	38.1	22.0	**4**	81.4	47.0	**4**	124.7	72.0	**4**	168.0	97.0	**4**	211.3	122.0	**4**	254.6	147.0
5	39.0	22.5	**5**	82.3	47.5	**5**	125.6	72.5	**5**	168.9	97.5	**5**	212.2	122.5	**5**	255.5	147.5
6	39.8	23.0	**6**	83.1	48.0	**6**	126.4	73.0	**6**	169.7	98.0	**6**	213.0	123.0	**6**	256.3	148.0
7	40.7	23.5	**7**	84.0	48.5	**7**	127.3	73.5	**7**	170.6	98.5	**7**	213.9	123.5	**7**	257.2	148.5
8	41.6	24.0	**8**	84.9	49.0	**8**	128.2	74.0	**8**	171.5	99.0	**8**	214.8	124.0	**8**	258.1	149.0
9	42.4	24.5	**9**	85.7	49.5	**9**	129.0	74.5	**9**	172.3	99.5	**9**	215.6	124.5	**9**	258.9	149.5
D	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ
ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap

ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap	
D	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap
300	259.8	150.0	**350**	303.1	175.0	**400**	346.4	200.0	**450**	389.7	225.0	**500**	433.0	250.0	**550**	476.3	275.0
1	260.7	150.5	**1**	304.0	175.5	**1**	347.3	200.5	**1**	390.6	225.5	**1**	433.9	250.5	**1**	477.2	275.5
2	261.5	151.0	**2**	304.8	176.0	**2**	348.1	201.0	**2**	391.4	226.0	**2**	434.7	251.0	**2**	478.0	276.0
3	262.4	151.5	**3**	305.7	176.5	**3**	349.0	201.5	**3**	392.3	226.5	**3**	435.6	251.5	**3**	478.9	276.5
4	263.3	152.0	**4**	306.6	177.0	**4**	349.9	202.0	**4**	393.2	227.0	**4**	436.5	252.0	**4**	479.8	277.0
5	264.1	152.5	**5**	307.4	177.5	**5**	350.7	202.5	**5**	394.0	227.5	**5**	437.3	252.5	**5**	480.6	277.5
6	265.0	153.0	**6**	308.3	178.0	**6**	351.6	203.0	**6**	394.9	228.0	**6**	438.2	253.0	**6**	481.5	278.0
7	265.9	153.5	**7**	309.2	178.5	**7**	352.5	203.5	**7**	395.8	228.5	**7**	439.1	253.5	**7**	482.4	278.5
8	266.7	154.0	**8**	310.0	179.0	**8**	353.3	204.0	**8**	396.6	229.0	**8**	439.9	254.0	**8**	483.2	279.0
9	267.6	154.5	**9**	310.9	179.5	**9**	354.2	204.5	**9**	397.5	229.5	**9**	440.8	254.5	**9**	484.1	279.5
310	268.5	155.0	**360**	311.8	180.0	**410**	355.1	205.0	**460**	398.4	230.0	**510**	441.7	255.0	**560**	485.0	280.0
1	269.3	155.5	**1**	312.6	180.5	**1**	355.9	205.5	**1**	399.2	230.5	**1**	442.5	255.5	**1**	485.8	280.5
2	270.2	156.0	**2**	313.5	181.0	**2**	356.8	206.0	**2**	400.1	231.0	**2**	443.4	256.0	**2**	486.7	281.0
3	271.1	156.5	**3**	314.4	181.5	**3**	357.7	206.5	**3**	401.0	231.5	**3**	444.3	256.5	**3**	487.6	281.5
4	271.9	157.0	**4**	315.2	182.0	**4**	358.5	207.0	**4**	401.8	232.0	**4**	445.1	257.0	**4**	488.4	282.0
5	272.8	157.5	**5**	316.1	182.5	**5**	359.4	207.5	**5**	402.7	232.5	**5**	446.0	257.5	**5**	489.3	282.5
6	273.7	158.0	**6**	317.0	183.0	**6**	360.3	208.0	**6**	403.6	233.0	**6**	446.9	258.0	**6**	490.2	283.0
7	274.5	158.5	**7**	317.8	183.5	**7**	361.1	208.5	**7**	404.4	233.5	**7**	447.7	258.5	**7**	491.0	283.5
8	275.4	159.0	**8**	318.7	184.0	**8**	362.0	209.0	**8**	405.3	234.0	**8**	448.6	259.0	**8**	491.9	284.0
9	276.3	159.5	**9**	319.6	184.5	**9**	362.9	209.5	**9**	406.2	234.5	**9**	449.5	259.5	**9**	492.8	284.5
320	277.1	160.0	**370**	320.4	185.0	**420**	363.7	210.0	**470**	407.0	235.0	**520**	450.3	260.0	**570**	493.6	285.0
1	278.0	160.5	**1**	321.3	185.5	**1**	364.6	210.5	**1**	407.9	235.5	**1**	451.2	260.5	**1**	494.5	285.5
2	278.9	161.0	**2**	322.2	186.0	**2**	365.5	211.0	**2**	408.8	236.0	**2**	452.1	261.0	**2**	495.4	286.0
3	279.7	161.5	**3**	323.0	186.5	**3**	366.3	211.5	**3**	409.6	236.5	**3**	452.9	261.5	**3**	496.2	286.5
4	280.6	162.0	**4**	323.9	187.0	**4**	367.2	212.0	**4**	410.5	237.0	**4**	453.8	262.0	**4**	497.1	287.0
5	281.5	162.5	**5**	324.8	187.5	**5**	368.1	212.5	**5**	411.4	237.5	**5**	454.7	262.5	**5**	498.0	287.5
6	282.3	163.0	**6**	325.6	188.0	**6**	368.9	213.0	**6**	412.2	238.0	**6**	455.5	263.0	**6**	498.8	288.0
7	283.2	163.5	**7**	326.5	188.5	**7**	369.8	213.5	**7**	413.1	238.5	**7**	456.4	263.5	**7**	499.7	288.5
8	284.1	164.0	**8**	327.4	189.0	**8**	370.7	214.0	**8**	414.0	239.0	**8**	457.3	264.0	**8**	500.6	289.0
9	284.9	164.5	**9**	328.2	189.5	**9**	371.5	214.5	**9**	414.8	239.5	**9**	458.1	264.5	**9**	501.4	289.5
330	285.8	165.0	**380**	329.1	190.0	**430**	372.4	215.0	**480**	415.7	240.0	**530**	459.0	265.0	**580**	502.3	290.0
1	286.7	165.5	**1**	330.0	190.5	**1**	373.3	215.5	**1**	416.6	240.5	**1**	459.9	265.5	**1**	503.2	290.5
2	287.5	166.0	**2**	330.8	191.0	**2**	374.1	216.0	**2**	417.4	241.0	**2**	460.7	266.0	**2**	504.0	291.0
3	288.4	166.5	**3**	331.7	191.5	**3**	375.0	216.5	**3**	418.3	241.5	**3**	461.6	266.5	**3**	504.9	291.5
4	289.3	167.0	**4**	332.6	192.0	**4**	375.9	217.0	**4**	419.2	242.0	**4**	462.5	267.0	**4**	505.8	292.0
5	290.1	167.5	**5**	333.4	192.5	**5**	376.7	217.5	**5**	420.0	242.5	**5**	463.3	267.5	**5**	506.6	292.5
6	291.0	168.0	**6**	334.3	193.0	**6**	377.6	218.0	**6**	420.9	243.0	**6**	464.2	268.0	**6**	507.5	293.0
7	291.9	168.5	**7**	335.2	193.5	**7**	378.5	218.5	**7**	421.8	243.5	**7**	465.1	268.5	**7**	508.4	293.5
8	292.7	169.0	**8**	336.0	194.0	**8**	379.3	219.0	**8**	422.6	244.0	**8**	465.9	269.0	**8**	509.2	294.0
9	293.6	169.5	**9**	336.9	194.5	**9**	380.2	219.5	**9**	423.5	244.5	**9**	466.8	269.5	**9**	510.1	294.5
340	294.4	170.0	**390**	337.7	195.0	**440**	381.1	220.0	**490**	424.4	245.0	**540**	467.7	270.0	**590**	511.0	295.0
1	295.3	170.5	**1**	338.6	195.5	**1**	381.9	220.5	**1**	425.2	245.5	**1**	468.5	270.5	**1**	511.8	295.5
2	296.2	171.0	**2**	339.5	196.0	**2**	382.8	221.0	**2**	426.1	246.0	**2**	469.4	271.0	**2**	512.7	296.0
3	297.0	171.5	**3**	340.3	196.5	**3**	383.6	221.5	**3**	427.0	246.5	**3**	470.3	271.5	**3**	513.6	296.5
4	297.9	172.0	**4**	341.2	197.0	**4**	384.5	222.0	**4**	427.8	247.0	**4**	471.1	272.0	**4**	514.4	297.0
5	298.8	172.5	**5**	342.1	197.5	**5**	385.4	222.5	**5**	428.7	247.5	**5**	472.0	272.5	**5**	515.3	297.5
6	299.6	173.0	**6**	342.9	198.0	**6**	386.2	223.0	**6**	429.5	248.0	**6**	472.8	273.0	**6**	516.2	298.0
7	300.5	173.5	**7**	343.8	198.5	**7**	387.1	223.5	**7**	430.4	248.5	**7**	473.7	273.5	**7**	517.0	298.5
8	301.4	174.0	**8**	344.7	199.0	**8**	388.0	224.0	**8**	431.3	249.0	**8**	474.6	274.0	**8**	517.9	299.0
9	302.2	174.5	**9**	345.5	199.5	**9**	388.8	224.5	**9**	432.1	249.5	**9**	475.4	274.5	**9**	518.7	299.5
D	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ
ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap

ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap	
D	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap
0	0.0	0.0	**50**	42.9	25.8	**100**	85.7	51.5	**150**	128.6	77.3	**200**	171.4	103.0	**250**	214.3	128.8
1	0.9	0.5	**1**	43.7	26.3	**1**	86.6	52.0	**1**	129.4	77.8	**1**	172.3	103.5	**1**	215.1	129.3
2	1.7	1.0	**2**	44.6	26.8	**2**	87.4	52.5	**2**	130.3	78.3	**2**	173.1	104.0	**2**	216.0	129.8
3	2.6	1.5	**3**	45.4	27.3	**3**	88.3	53.0	**3**	131.1	78.8	**3**	174.0	104.6	**3**	216.9	130.3
4	3.4	2.1	**4**	46.3	27.8	**4**	89.1	53.6	**4**	132.0	79.3	**4**	174.9	105.1	**4**	217.7	130.8
5	4.3	2.6	**5**	47.1	28.3	**5**	90.0	54.1	**5**	132.9	79.8	**5**	175.7	105.6	**5**	218.6	131.3
6	5.1	3.1	**6**	48.0	28.8	**6**	90.9	54.6	**6**	133.7	80.3	**6**	176.6	106.1	**6**	219.4	131.8
7	6.0	3.6	**7**	48.9	29.4	**7**	91.7	55.1	**7**	134.6	80.9	**7**	177.4	106.6	**7**	220.3	132.4
8	6.9	4.1	**8**	49.7	29.9	**8**	92.6	55.6	**8**	135.4	81.4	**8**	178.3	107.1	**8**	221.1	132.9
9	7.7	4.6	**9**	50.6	30.4	**9**	93.4	56.1	**9**	136.3	81.9	**9**	179.1	107.6	**9**	222.0	133.4
10	8.6	5.2	**60**	51.4	30.9	**110**	94.3	56.7	**160**	137.1	82.4	**210**	180.0	108.2	**260**	222.9	133.9
1	9.4	5.7	**1**	52.3	31.4	**1**	95.1	57.2	**1**	138.0	82.9	**1**	180.9	108.7	**1**	223.7	134.4
2	10.3	6.2	**2**	53.1	31.9	**2**	96.0	57.7	**2**	138.9	83.4	**2**	181.7	109.2	**2**	224.6	134.9
3	11.1	6.7	**3**	54.0	32.4	**3**	96.9	58.2	**3**	139.7	84.0	**3**	182.6	109.7	**3**	225.4	135.5
4	12.0	7.2	**4**	54.9	33.0	**4**	97.7	58.7	**4**	140.6	84.5	**4**	183.4	110.2	**4**	226.3	136.0
5	12.9	7.7	**5**	55.7	33.5	**5**	98.6	59.2	**5**	141.4	85.0	**5**	184.3	110.7	**5**	227.1	136.5
6	13.7	8.2	**6**	56.6	34.0	**6**	99.4	59.7	**6**	142.3	85.5	**6**	185.1	111.2	**6**	228.0	137.0
7	14.6	8.8	**7**	57.4	34.5	**7**	100.3	60.3	**7**	143.1	86.0	**7**	186.0	111.8	**7**	228.9	137.5
8	15.4	9.3	**8**	58.3	35.0	**8**	101.1	60.8	**8**	144.0	86.5	**8**	186.9	112.3	**8**	229.7	138.0
9	16.3	9.8	**9**	59.1	35.5	**9**	102.0	61.3	**9**	144.9	87.0	**9**	187.7	112.8	**9**	230.6	138.5
20	17.1	10.3	**70**	60.0	36.1	**120**	102.9	61.8	**170**	145.7	87.6	**220**	188.6	113.3	**270**	231.4	139.1
1	18.0	10.8	**1**	60.9	36.6	**1**	103.7	62.3	**1**	146.6	88.1	**1**	189.4	113.8	**1**	232.3	139.6
2	18.9	11.3	**2**	61.7	37.1	**2**	104.6	62.8	**2**	147.4	88.6	**2**	190.3	114.3	**2**	233.1	140.1
3	19.7	11.8	**3**	62.6	37.6	**3**	105.4	63.3	**3**	148.3	89.1	**3**	191.1	114.9	**3**	234.0	140.6
4	20.6	12.4	**4**	63.4	38.1	**4**	106.3	63.9	**4**	149.1	89.6	**4**	192.0	115.4	**4**	234.9	141.1
5	21.4	12.9	**5**	64.3	38.6	**5**	107.1	64.4	**5**	150.0	90.1	**5**	192.9	115.9	**5**	235.7	141.6
6	22.3	13.4	**6**	65.1	39.1	**6**	108.0	64.9	**6**	150.9	90.6	**6**	193.7	116.4	**6**	236.6	142.2
7	23.1	13.9	**7**	66.0	39.7	**7**	108.9	65.4	**7**	151.7	91.2	**7**	194.6	116.9	**7**	237.4	142.7
8	24.0	14.4	**8**	66.9	40.2	**8**	109.7	65.9	**8**	152.6	91.7	**8**	195.4	117.4	**8**	238.3	143.2
9	24.9	14.9	**9**	67.7	40.7	**9**	110.6	66.4	**9**	153.4	92.2	**9**	196.3	117.9	**9**	239.1	143.7
30	25.7	15.5	**80**	68.6	41.2	**130**	111.4	67.0	**180**	154.3	92.7	**230**	197.1	118.5	**280**	240.0	144.2
1	26.6	16.0	**1**	69.4	41.7	**1**	112.3	67.5	**1**	155.1	93.2	**1**	198.0	119.0	**1**	240.9	144.7
2	27.4	16.5	**2**	70.3	42.2	**2**	113.1	68.0	**2**	156.0	93.7	**2**	198.9	119.5	**2**	241.7	145.2
3	28.3	17.0	**3**	71.1	42.7	**3**	114.0	68.5	**3**	156.9	94.3	**3**	199.7	120.0	**3**	242.6	145.8
4	29.1	17.5	**4**	72.0	43.3	**4**	114.9	69.0	**4**	157.7	94.8	**4**	200.6	120.5	**4**	243.4	146.3
5	30.0	18.0	**5**	72.9	43.8	**5**	115.7	69.5	**5**	158.6	95.3	**5**	201.4	121.0	**5**	244.3	146.8
6	30.9	18.5	**6**	73.7	44.3	**6**	116.6	70.0	**6**	159.4	95.8	**6**	202.3	121.5	**6**	245.1	147.3
7	31.7	19.1	**7**	74.6	44.8	**7**	117.4	70.6	**7**	160.3	96.3	**7**	203.1	122.1	**7**	246.0	147.8
8	32.6	19.6	**8**	75.4	45.3	**8**	118.3	71.1	**8**	161.1	96.8	**8**	204.0	122.6	**8**	246.9	148.3
9	33.4	20.1	**9**	76.3	45.8	**9**	119.1	71.6	**9**	162.0	97.3	**9**	204.9	123.1	**9**	247.7	148.8
40	34.3	20.6	**90**	77.1	46.4	**140**	120.0	72.1	**190**	162.9	97.9	**240**	205.7	123.6	**290**	248.6	149.4
1	35.1	21.1	**1**	78.0	46.9	**1**	120.9	72.6	**1**	163.7	98.4	**1**	206.6	124.1	**1**	249.4	149.9
2	36.0	21.6	**2**	78.9	47.4	**2**	121.7	73.1	**2**	164.6	98.9	**2**	207.4	124.6	**2**	250.3	150.4
3	36.9	22.1	**3**	79.7	47.9	**3**	122.6	73.7	**3**	165.4	99.4	**3**	208.3	125.2	**3**	251.2	150.9
4	37.7	22.7	**4**	80.6	48.4	**4**	123.4	74.2	**4**	166.3	99.9	**4**	209.1	125.7	**4**	252.0	151.4
5	38.6	23.2	**5**	81.4	48.9	**5**	124.3	74.7	**5**	167.1	100.4	**5**	210.0	126.2	**5**	252.9	151.9
6	39.4	23.7	**6**	82.3	49.4	**6**	125.1	75.2	**6**	168.0	100.9	**6**	210.9	126.7	**6**	253.7	152.5
7	40.3	24.2	**7**	83.1	50.0	**7**	126.0	75.7	**7**	168.9	101.5	**7**	211.7	127.2	**7**	254.6	153.0
8	41.1	24.7	**8**	84.0	50.5	**8**	126.9	76.2	**8**	169.7	102.0	**8**	212.6	127.7	**8**	255.4	153.5
9	42.0	25.2	**9**	84.9	51.0	**9**	127.7	76.7	**9**	170.6	102.5	**9**	213.4	128.2	**9**	256.3	154.0
D	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ
ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap

ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap	
D	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap
300	257.2	154.5	**350**	300.0	180.3	**400**	342.9	206.0	**450**	385.7	231.8	**500**	428.6	257.5	**550**	471.4	283.3
1	258.0	155.0	**1**	300.9	180.8	**1**	343.7	206.5	**1**	386.6	232.3	**1**	429.4	258.0	**1**	472.3	283.8
2	258.9	155.5	**2**	301.7	181.3	**2**	344.6	207.0	**2**	387.4	232.8	**2**	430.3	258.5	**2**	473.2	284.3
3	259.7	156.1	**3**	302.6	181.8	**3**	345.4	207.6	**3**	388.3	233.3	**3**	431.2	259.1	**3**	474.0	284.8
4	260.6	156.6	**4**	303.4	182.3	**4**	346.3	208.1	**4**	389.2	233.8	**4**	432.0	259.6	**4**	474.9	285.3
5	261.4	157.1	**5**	304.3	182.8	**5**	347.2	208.6	**5**	390.0	234.3	**5**	432.9	260.1	**5**	475.7	285.8
6	262.3	157.6	**6**	305.2	183.4	**6**	348.0	209.1	**6**	390.9	234.9	**6**	433.7	260.6	**6**	476.6	286.4
7	263.2	158.1	**7**	306.0	183.9	**7**	348.9	209.6	**7**	391.7	235.4	**7**	434.6	261.1	**7**	477.4	286.9
8	264.0	158.6	**8**	306.9	184.4	**8**	349.7	210.1	**8**	392.6	235.9	**8**	435.4	261.6	**8**	478.3	287.4
9	264.9	159.1	**9**	307.7	184.9	**9**	350.6	210.7	**9**	393.4	236.4	**9**	436.3	262.2	**9**	479.2	287.9
310	265.7	159.7	**360**	308.6	185.4	**410**	351.4	211.2	**460**	394.3	236.9	**510**	437.2	262.7	**560**	480.0	288.4
1	266.6	160.2	**1**	309.4	185.9	**1**	352.3	211.7	**1**	395.2	237.4	**1**	438.0	263.2	**1**	480.9	288.9
2	267.4	160.7	**2**	310.3	186.4	**2**	353.2	212.2	**2**	396.0	237.9	**2**	438.9	263.7	**2**	481.7	289.5
3	268.3	161.2	**3**	311.2	187.0	**3**	354.0	212.7	**3**	396.9	238.5	**3**	439.7	264.2	**3**	482.6	290.0
4	269.2	161.7	**4**	312.0	187.5	**4**	354.9	213.2	**4**	397.7	239.0	**4**	440.6	264.7	**4**	483.4	290.5
5	270.0	162.2	**5**	312.9	188.0	**5**	355.7	213.7	**5**	398.6	239.5	**5**	441.4	265.2	**5**	484.3	291.0
6	270.9	162.8	**6**	313.7	188.5	**6**	356.6	214.3	**6**	399.4	240.0	**6**	442.3	265.8	**6**	485.2	291.5
7	271.7	163.3	**7**	314.6	189.0	**7**	357.4	214.8	**7**	400.3	240.5	**7**	443.2	266.3	**7**	486.0	292.0
8	272.6	163.8	**8**	315.4	189.5	**8**	358.3	215.3	**8**	401.2	241.0	**8**	444.0	266.8	**8**	486.9	292.5
9	273.4	164.3	**9**	316.3	190.0	**9**	359.2	215.8	**9**	402.0	241.6	**9**	444.9	267.3	**9**	487.7	293.1
320	274.3	164.8	**370**	317.2	190.6	**420**	360.0	216.3	**470**	402.9	242.1	**520**	445.7	267.8	**570**	488.6	293.6
1	275.2	165.3	**1**	318.0	191.1	**1**	360.9	216.8	**1**	403.7	242.6	**1**	446.6	268.3	**1**	489.4	294.1
2	276.0	165.8	**2**	318.9	191.6	**2**	361.7	217.3	**2**	404.6	243.1	**2**	447.4	268.8	**2**	490.3	294.6
3	276.9	166.4	**3**	319.7	192.1	**3**	362.6	217.9	**3**	405.4	243.6	**3**	448.3	269.4	**3**	491.2	295.1
4	277.7	166.9	**4**	320.6	192.6	**4**	363.4	218.4	**4**	406.3	244.1	**4**	449.2	269.9	**4**	492.0	295.6
5	278.6	167.4	**5**	321.4	193.1	**5**	364.3	218.9	**5**	407.2	244.6	**5**	450.0	270.4	**5**	492.9	296.1
6	279.4	167.9	**6**	322.3	193.7	**6**	365.2	219.4	**6**	408.0	245.2	**6**	450.9	270.9	**6**	493.7	296.7
7	280.3	168.4	**7**	323.2	194.2	**7**	366.0	219.9	**7**	408.9	245.7	**7**	451.7	271.4	**7**	494.6	297.2
8	281.2	168.9	**8**	324.0	194.7	**8**	366.9	220.4	**8**	409.7	246.2	**8**	452.6	271.9	**8**	495.4	297.7
9	282.0	169.4	**9**	324.9	195.2	**9**	367.7	221.0	**9**	410.6	246.7	**9**	453.4	272.5	**9**	496.3	298.2
330	282.9	170.0	**380**	325.7	195.7	**430**	368.6	221.5	**480**	411.4	247.2	**530**	454.3	273.0	**580**	497.2	298.7
1	283.7	170.5	**1**	326.6	196.2	**1**	369.4	222.0	**1**	412.3	247.7	**1**	455.2	273.5	**1**	498.0	299.2
2	284.6	171.0	**2**	327.4	196.7	**2**	370.3	222.5	**2**	413.2	248.2	**2**	456.0	274.0	**2**	498.9	299.8
3	285.4	171.5	**3**	328.3	197.3	**3**	371.2	223.0	**3**	414.0	248.8	**3**	456.9	274.5	**3**	499.7	300.3
4	286.3	172.0	**4**	329.2	197.8	**4**	372.0	223.5	**4**	414.9	249.3	**4**	457.7	275.0	**4**	500.6	300.8
5	287.2	172.5	**5**	330.0	198.3	**5**	372.9	224.0	**5**	415.7	249.8	**5**	458.6	275.5	**5**	501.4	301.3
6	288.0	173.1	**6**	330.9	198.8	**6**	373.7	224.6	**6**	416.6	250.3	**6**	459.4	276.1	**6**	502.3	301.8
7	288.9	173.6	**7**	331.7	199.3	**7**	374.6	225.1	**7**	417.4	250.8	**7**	460.3	276.6	**7**	503.2	302.3
8	289.7	174.1	**8**	332.6	199.8	**8**	375.4	225.6	**8**	418.3	251.3	**8**	461.2	277.1	**8**	504.0	302.8
9	290.6	174.6	**9**	333.4	200.3	**9**	376.3	226.1	**9**	419.2	251.9	**9**	462.0	277.6	**9**	504.9	303.4
340	291.4	175.1	**390**	334.3	200.9	**440**	377.2	226.6	**490**	420.0	252.4	**540**	462.9	278.1	**590**	505.7	303.9
1	292.3	175.6	**1**	335.2	201.4	**1**	378.0	227.1	**1**	420.9	252.9	**1**	463.7	278.6	**1**	506.6	304.4
2	293.2	176.1	**2**	336.0	201.9	**2**	378.9	227.6	**2**	421.7	253.4	**2**	464.6	279.2	**2**	507.4	304.9
3	294.0	176.7	**3**	336.9	202.4	**3**	379.7	228.2	**3**	422.6	253.9	**3**	465.4	279.7	**3**	508.3	305.4
4	294.9	177.2	**4**	337.7	202.9	**4**	380.6	228.7	**4**	423.4	254.4	**4**	466.3	280.2	**4**	509.2	305.9
5	295.7	177.7	**5**	338.6	203.4	**5**	381.4	229.2	**5**	424.3	254.9	**5**	467.2	280.7	**5**	510.0	306.4
6	296.6	178.2	**6**	339.4	204.0	**6**	382.3	229.7	**6**	425.2	255.5	**6**	468.0	281.2	**6**	510.9	307.0
7	297.4	178.7	**7**	340.3	204.5	**7**	383.2	230.2	**7**	426.0	256.0	**7**	468.9	281.7	**7**	511.7	307.5
8	298.3	179.2	**8**	341.2	205.0	**8**	384.0	230.7	**8**	426.9	256.5	**8**	469.7	282.2	**8**	512.6	308.0
9	299.2	179.7	**9**	342.0	205.5	**9**	384.9	231.3	**9**	427.7	257.0	**9**	470.6	282.8	**9**	513.4	308.5
D	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ
ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap

ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap	
D	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap
0	0.0	0.0	**50**	42.4	26.5	**100**	84.8	53.0	**150**	127.2	79.5	**200**	169.6	106.0	**250**	212.0	132.5
1	0.8	0.5	**1**	43.3	27.0	**1**	85.7	53.5	**1**	128.1	80.0	**1**	170.5	106.5	**1**	212.9	133.0
2	1.7	1.1	**2**	44.1	27.6	**2**	86.5	54.1	**2**	128.9	80.5	**2**	171.3	107.0	**2**	213.7	133.5
3	2.5	1.6	**3**	44.9	28.1	**3**	87.3	54.6	**3**	129.8	81.1	**3**	172.2	107.6	**3**	214.6	134.1
4	3.4	2.1	**4**	45.8	28.6	**4**	88.2	55.1	**4**	130.6	81.6	**4**	173.0	108.1	**4**	215.4	134.6
5	4.2	2.6	**5**	46.6	29.1	**5**	89.0	55.6	**5**	131.4	82.1	**5**	173.8	108.6	**5**	216.3	135.1
6	5.1	3.2	**6**	47.5	29.7	**6**	89.9	56.2	**6**	132.3	82.7	**6**	174.7	109.2	**6**	217.1	135.7
7	5.9	3.7	**7**	48.3	30.2	**7**	90.7	56.7	**7**	133.1	83.2	**7**	175.5	109.7	**7**	217.9	136.2
8	6.8	4.2	**8**	49.2	30.7	**8**	91.6	57.2	**8**	134.0	83.7	**8**	176.4	110.2	**8**	218.8	136.7
9	7.6	4.8	**9**	50.0	31.3	**9**	92.4	57.8	**9**	134.8	84.3	**9**	177.2	110.8	**9**	219.6	137.2
10	8.5	5.3	**60**	50.9	31.8	**110**	93.3	58.3	**160**	135.7	84.8	**210**	178.1	111.3	**260**	220.5	137.8
1	9.3	5.8	**1**	51.7	32.3	**1**	94.1	58.8	**1**	136.5	85.3	**1**	178.9	111.8	**1**	221.3	138.3
2	10.2	6.4	**2**	52.6	32.9	**2**	95.0	59.4	**2**	137.4	85.8	**2**	179.8	112.3	**2**	222.2	138.8
3	11.0	6.9	**3**	53.4	33.4	**3**	95.8	59.9	**3**	138.2	86.4	**3**	180.6	112.9	**3**	223.0	139.4
4	11.9	7.4	**4**	54.3	33.9	**4**	96.7	60.4	**4**	139.1	86.9	**4**	181.5	113.4	**4**	223.9	139.9
5	12.7	7.9	**5**	55.1	34.4	**5**	97.5	60.9	**5**	139.9	87.4	**5**	182.3	113.9	**5**	224.7	140.4
6	13.6	8.5	**6**	56.0	35.0	**6**	98.4	61.5	**6**	140.8	88.0	**6**	183.2	114.5	**6**	225.6	141.0
7	14.4	9.0	**7**	56.8	35.5	**7**	99.2	62.0	**7**	141.6	88.5	**7**	184.0	115.0	**7**	226.4	141.5
8	15.3	9.5	**8**	57.7	36.0	**8**	100.1	62.5	**8**	142.5	89.0	**8**	184.9	115.5	**8**	227.3	142.0
9	16.1	10.1	**9**	58.5	36.6	**9**	100.9	63.1	**9**	143.3	89.6	**9**	185.7	116.1	**9**	228.1	142.5
20	17.0	10.6	**70**	59.4	37.1	**120**	101.8	63.6	**170**	144.2	90.1	**220**	186.6	116.6	**270**	229.0	143.1
1	17.8	11.1	**1**	60.2	37.6	**1**	102.6	64.1	**1**	145.0	90.6	**1**	187.4	117.1	**1**	229.8	143.6
2	18.7	11.7	**2**	61.1	38.2	**2**	103.5	64.7	**2**	145.9	91.1	**2**	188.3	117.6	**2**	230.7	144.1
3	19.5	12.2	**3**	61.9	38.7	**3**	104.3	65.2	**3**	146.7	91.7	**3**	189.1	118.2	**3**	231.5	144.7
4	20.4	12.7	**4**	62.8	39.2	**4**	105.2	65.7	**4**	147.6	92.2	**4**	190.0	118.7	**4**	232.4	145.2
5	21.2	13.2	**5**	63.6	39.7	**5**	106.0	66.2	**5**	148.4	92.7	**5**	190.8	119.2	**5**	233.2	145.7
6	22.0	13.8	**6**	64.5	40.3	**6**	106.9	66.8	**6**	149.3	93.3	**6**	191.7	119.8	**6**	234.1	146.3
7	22.9	14.3	**7**	65.3	40.8	**7**	107.7	67.3	**7**	150.1	93.8	**7**	192.5	120.3	**7**	234.9	146.8
8	23.7	14.8	**8**	66.1	41.3	**8**	108.6	67.8	**8**	151.0	94.3	**8**	193.4	120.8	**8**	235.8	147.3
9	24.6	15.4	**9**	67.0	41.9	**9**	109.4	68.4	**9**	151.8	94.9	**9**	194.2	121.4	**9**	236.6	147.8
30	25.4	15.9	**80**	67.8	42.4	**130**	110.2	68.9	**180**	152.6	95.4	**230**	195.1	121.9	**280**	237.5	148.4
1	26.3	16.4	**1**	68.7	42.9	**1**	111.1	69.4	**1**	153.5	95.9	**1**	195.9	122.4	**1**	238.3	148.9
2	27.1	17.0	**2**	69.5	43.5	**2**	111.9	69.9	**2**	154.3	96.4	**2**	196.7	122.9	**2**	239.1	149.4
3	28.0	17.5	**3**	70.4	44.0	**3**	112.8	70.5	**3**	155.2	97.0	**3**	197.6	123.5	**3**	240.0	150.0
4	28.8	18.0	**4**	71.2	44.5	**4**	113.6	71.0	**4**	156.0	97.5	**4**	198.4	124.0	**4**	240.8	150.5
5	29.7	18.5	**5**	72.1	45.0	**5**	114.5	71.5	**5**	156.9	98.0	**5**	199.3	124.5	**5**	241.7	151.0
6	30.5	19.1	**6**	72.9	45.6	**6**	115.3	72.1	**6**	157.7	98.6	**6**	200.1	125.1	**6**	242.5	151.6
7	31.4	19.6	**7**	73.8	46.1	**7**	116.2	72.6	**7**	158.6	99.1	**7**	201.0	125.6	**7**	243.4	152.1
8	32.2	20.1	**8**	74.6	46.6	**8**	117.0	73.1	**8**	159.4	99.6	**8**	201.8	126.1	**8**	244.2	152.6
9	33.1	20.7	**9**	75.5	47.2	**9**	117.9	73.7	**9**	160.3	100.2	**9**	202.7	126.7	**9**	245.1	153.1
40	33.9	21.2	**90**	76.3	47.7	**140**	118.7	74.2	**190**	161.1	100.7	**240**	203.5	127.2	**290**	245.9	153.7
1	34.8	21.7	**1**	77.2	48.2	**1**	119.6	74.7	**1**	162.0	101.2	**1**	204.4	127.7	**1**	246.8	154.2
2	35.6	22.3	**2**	78.0	48.8	**2**	120.4	75.2	**2**	162.8	101.7	**2**	205.2	128.2	**2**	247.6	154.7
3	36.5	22.8	**3**	78.9	49.3	**3**	121.3	75.8	**3**	163.7	102.3	**3**	206.1	128.8	**3**	248.5	155.3
4	37.3	23.3	**4**	79.7	49.8	**4**	122.1	76.3	**4**	164.5	102.8	**4**	206.9	129.3	**4**	249.3	155.8
5	38.2	23.8	**5**	80.6	50.3	**5**	123.0	76.8	**5**	165.4	103.3	**5**	207.8	129.8	**5**	250.2	156.3
6	39.0	24.4	**6**	81.4	50.9	**6**	123.8	77.4	**6**	166.2	103.9	**6**	208.6	130.4	**6**	251.0	156.9
7	39.9	24.9	**7**	82.3	51.4	**7**	124.7	77.9	**7**	167.1	104.4	**7**	209.5	130.9	**7**	251.9	157.4
8	40.7	25.4	**8**	83.1	51.9	**8**	125.5	78.4	**8**	167.9	104.9	**8**	210.3	131.4	**8**	252.7	157.9
9	41.6	26.0	**9**	84.0	52.5	**9**	126.4	79.0	**9**	168.8	105.5	**9**	211.2	131.9	**9**	253.6	158.4
D	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ
ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap

TABELA 1

TÁBUAS DE CARTEAÇÃO

ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap		ΔL	ap	
D	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap	**D**	Δφ	ap
300	254.4	159.0	**350**	296.8	185.5	**400**	339.2	212.0	**450**	381.6	238.5	**500**	424.0	265.0	**550**	466.4	291.5
1	255.3	159.5	**1**	297.7	186.0	**1**	340.1	212.5	**1**	382.5	239.0	**1**	424.9	265.5	**1**	467.3	292.0
2	256.1	160.0	**2**	298.5	186.5	**2**	340.9	213.0	**2**	383.3	239.5	**2**	425.7	266.0	**2**	468.1	292.5
3	257.0	160.6	**3**	299.4	187.1	**3**	341.8	213.6	**3**	384.2	240.1	**3**	426.6	266.5	**3**	469.0	293.0
4	257.8	161.1	**4**	300.2	187.6	**4**	342.6	214.1	**4**	385.0	240.6	**4**	427.4	267.1	**4**	469.8	293.6
5	258.7	161.6	**5**	301.1	188.1	**5**	343.5	214.6	**5**	385.9	241.1	**5**	428.3	267.6	**5**	470.7	294.1
6	259.5	162.2	**6**	301.9	188.7	**6**	344.3	215.1	**6**	386.7	241.6	**6**	429.1	268.1	**6**	471.5	294.6
7	260.4	162.7	**7**	302.8	189.2	**7**	345.2	215.7	**7**	387.6	242.2	**7**	430.0	268.7	**7**	472.4	295.2
8	261.2	163.2	**8**	303.6	189.7	**8**	346.0	216.2	**8**	388.4	242.7	**8**	430.8	269.2	**8**	473.2	295.7
9	262.0	163.7	**9**	304.4	190.2	**9**	346.9	216.7	**9**	389.3	243.2	**9**	431.7	269.7	**9**	474.1	296.2
310	262.9	164.3	**360**	305.3	190.8	**410**	347.7	217.3	**460**	390.1	243.8	**510**	432.5	270.3	**560**	474.9	296.8
1	263.7	164.8	**1**	306.1	191.3	**1**	348.5	217.8	**1**	390.9	244.3	**1**	433.4	270.8	**1**	475.8	297.3
2	264.6	165.3	**2**	307.0	191.8	**2**	349.4	218.3	**2**	391.8	244.8	**2**	434.2	271.3	**2**	476.6	297.8
3	265.4	165.9	**3**	307.8	192.4	**3**	350.2	218.9	**3**	392.6	245.4	**3**	435.0	271.8	**3**	477.5	298.3
4	266.3	166.4	**4**	308.7	192.9	**4**	351.1	219.4	**4**	393.5	245.9	**4**	435.9	272.4	**4**	478.3	298.9
5	267.1	166.9	**5**	309.5	193.4	**5**	351.9	219.9	**5**	394.3	246.4	**5**	436.7	272.9	**5**	479.1	299.4
6	268.0	167.5	**6**	310.4	194.0	**6**	352.8	220.4	**6**	395.2	246.9	**6**	437.6	273.4	**6**	480.0	299.9
7	268.8	168.0	**7**	311.2	194.5	**7**	353.6	221.0	**7**	396.0	247.5	**7**	438.4	274.0	**7**	480.8	300.5
8	269.7	168.5	**8**	312.1	195.0	**8**	354.5	221.5	**8**	396.9	248.0	**8**	439.3	274.5	**8**	481.7	301.0
9	270.5	169.0	**9**	312.9	195.5	**9**	355.3	222.0	**9**	397.7	248.5	**9**	440.1	275.0	**9**	482.5	301.5
320	271.4	169.6	**370**	313.8	196.1	**420**	356.2	222.6	**470**	398.6	249.1	**520**	441.0	275.6	**570**	483.4	302.1
1	272.2	170.1	**1**	314.6	196.6	**1**	357.0	223.1	**1**	399.4	249.6	**1**	441.8	276.1	**1**	484.2	302.6
2	273.1	170.6	**2**	315.5	197.1	**2**	357.9	223.6	**2**	400.3	250.1	**2**	442.7	276.6	**2**	485.1	303.1
3	273.9	171.2	**3**	316.3	197.7	**3**	358.7	224.2	**3**	401.1	250.7	**3**	443.5	277.1	**3**	485.9	303.6
4	274.8	171.7	**4**	317.2	198.2	**4**	359.6	224.7	**4**	402.0	251.2	**4**	444.4	277.7	**4**	486.8	304.2
5	275.6	172.2	**5**	318.0	198.7	**5**	360.4	225.2	**5**	402.8	251.7	**5**	445.2	278.2	**5**	487.6	304.7
6	276.5	172.8	**6**	318.9	199.2	**6**	361.3	225.7	**6**	403.7	252.2	**6**	446.1	278.7	**6**	488.5	305.2
7	277.3	173.3	**7**	319.7	199.8	**7**	362.1	226.3	**7**	404.5	252.8	**7**	446.9	279.3	**7**	489.3	305.8
8	278.2	173.8	**8**	320.6	200.3	**8**	363.0	226.8	**8**	405.4	253.3	**8**	447.8	279.8	**8**	490.2	306.3
9	279.0	174.3	**9**	321.4	200.8	**9**	363.8	227.3	**9**	406.2	253.8	**9**	448.6	280.3	**9**	491.0	306.8
330	279.9	174.9	**380**	322.3	201.4	**430**	364.7	227.9	**480**	407.1	254.4	**530**	449.5	280.9	**580**	491.9	307.4
1	280.7	175.4	**1**	323.1	201.9	**1**	365.5	228.4	**1**	407.9	254.9	**1**	450.3	281.4	**1**	492.7	307.9
2	281.6	175.9	**2**	324.0	202.4	**2**	366.4	228.9	**2**	408.8	255.4	**2**	451.2	281.9	**2**	493.6	308.4
3	282.4	176.5	**3**	324.8	203.0	**3**	367.2	229.5	**3**	409.6	256.0	**3**	452.0	282.4	**3**	494.4	308.9
4	283.2	177.0	**4**	325.7	203.5	**4**	368.1	230.0	**4**	410.5	256.5	**4**	452.9	283.0	**4**	495.3	309.5
5	284.1	177.5	**5**	326.5	204.0	**5**	368.9	230.5	**5**	411.3	257.0	**5**	453.7	283.5	**5**	496.1	310.0
6	284.9	178.1	**6**	327.3	204.5	**6**	369.7	231.0	**6**	412.2	257.5	**6**	454.6	284.0	**6**	497.0	310.5
7	285.8	178.6	**7**	328.2	205.1	**7**	370.6	231.6	**7**	413.0	258.1	**7**	455.4	284.6	**7**	497.8	311.1
8	286.6	179.1	**8**	329.0	205.6	**8**	371.4	232.1	**8**	413.8	258.6	**8**	456.2	285.1	**8**	498.7	311.6
9	287.5	179.6	**9**	329.9	206.1	**9**	372.3	232.6	**9**	414.7	259.1	**9**	457.1	285.6	**9**	499.5	312.1
340	288.3	180.2	**390**	330.7	206.7	**440**	373.1	233.2	**490**	415.5	259.7	**540**	457.9	286.2	**590**	500.3	312.7
1	289.2	180.7	**1**	331.6	207.2	**1**	374.0	233.7	**1**	416.4	260.2	**1**	458.8	286.7	**1**	501.2	313.2
2	290.0	181.2	**2**	332.4	207.7	**2**	374.8	234.2	**2**	417.2	260.7	**2**	459.6	287.2	**2**	502.0	313.7
3	290.9	181.8	**3**	333.3	208.3	**3**	375.7	234.8	**3**	418.1	261.3	**3**	460.5	287.7	**3**	502.9	314.2
4	291.7	182.3	**4**	334.1	208.8	**4**	376.5	235.3	**4**	418.9	261.8	**4**	461.3	288.3	**4**	503.7	314.8
5	292.6	182.8	**5**	335.0	209.3	**5**	377.4	235.8	**5**	419.8	262.3	**5**	462.2	288.8	**5**	504.6	315.3
6	293.4	183.4	**6**	335.8	209.8	**6**	378.2	236.3	**6**	420.6	262.8	**6**	463.0	289.3	**6**	505.4	315.8
7	294.3	183.9	**7**	336.7	210.4	**7**	379.1	236.9	**7**	421.5	263.4	**7**	463.9	289.9	**7**	506.3	316.4
8	295.1	184.4	**8**	337.5	210.9	**8**	379.9	237.4	**8**	422.3	263.9	**8**	464.7	290.4	**8**	507.1	316.9
9	296.0	184.9	**9**	338.4	211.4	**9**	380.8	237.9	**9**	423.2	264.4	**9**	465.6	290.9	**9**	508.0	317.4
D	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ	**D**	ap	Δφ
ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap	ΔL		ap