

Sheet1

STATE HEADING INFORMATION
by Philip B. Mix, WB1CZE
Williston,Vt. 05495
TABLE CUSTOM COMPUTED FOR
THIS STATION IS LOCATED

LATITUDE (N)
LONGITUDE (W)

CALL DIST	STATE	BEARto
	4 ALABAMA	242
	7 ALASKA	328
	7 ARIZONA	273
	5 ARKANSAS	262
	6 CALIFORNIA	280
	10 COLORADO	279
	1 CONNECTICUT	43
	3 DELAWARE	38
	4 FLORIDA	206
	4 GEORGIA	231
	6 HAWAII	280
	7 IDAHO	294
	9 ILLINOIS	285
	9 INDIANA	292
	10 IOWA	297
	10 KANSAS	280
	4 KENTUCKY	264
	5 LOUISIANA	247
	1 MAINE	40
	3 MARYLAND	#DIV/0!
	1 MASSACHUSETTS	41
	8 MICHIGAN	317
	10 MINNISOTA	307
	5 MISSISSIPPI	251
	10 MISSOURI	279
	7 MONTANA	302
	10 NEBRASKA	291
	7 NEVADA	286
	1 NEW HAMPSHIRE	36
	2 NEW JERSEY	29
	5 NEW MEXICO	271
	2 NEW YORK	24
	4 NORTH CAROLINA	251
	10 NORTH DAKOTA	307
	8 OHIO	304
	5 OKLAHOMA	273
	7 OREGON	298
	3 PENNSYLVANIA	#DIV/0!
	1 RHODE ISLAND	36

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4 SOUTH CAROLINA	227
10 SOUTH DAKOTA	299
4 TENNESEE	253
5 TEXAS	260
7 UTAH	283
1 VERMONT	27
4 VIRGINIA	#DIV/0!
7 WASHINGTON	301
8 WEST VIRGINIA	286
9 WISCONSIN	309
7 WYOMING	294

Sheet1

COMPUTED ON A DIGITAL RAINBOW 100A PC
with a WB1CZE program written
on LOTUS 123 software.

SCOTT, W3VS

3 LAND, MD.?

37 deg
77 deg

Note: East Latitudes
and South Longitudes
are negative!

BEARfrm	DISTmi	N LAT	W LONG
	56 665	32	87
	87 3446	65	150
	72 2043	33	113
	72 922	34	93
	74 2386	35	120
	81 1538	37	105
	226 385	41	72
	219 88	38	76
	24 686	28	82
	47 527	32	84
	57 4804	20	156
	89 2034	43	115
	97 715	39	89.9
	107 517	39.5	86
	107 918	42	93
	87 1096	38	97
	79 449	36	85
	59 901	31	91
	224 555	43	70
	#DIV/0! 138	39	77
	225 470	42	71
	132 592	43	85
	116 1041	45	94
	63 867	32	91
	90 824	38	92
	98 1905	47	112
	98 1105	41	97
	81 2163	39	117
	219 522	43	71
	211 271	40.4	74.5
	74 1637	34	106
	206 380	42	74
	68 297	35.5	82
	111 1404	47	101
	121 385	40	83
	80 1165	36	98
	87 2426	45	123
	#DIV/0! 242	40.5	77
	219 436	42	72

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44	395	33	82
104	1295	44	100
67	599	34	87
68	1241	32	98
81	1907	38	112
210	550	44	72
#DIV/0!	0	37	77
90	2374	47	122
103	282	38	82
121	839	44	90.1
95	1630	43	107

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= 0.645771823237902
 = 1.34390352403563

B
 N LAT(Rad)

W Long(Rad)

0.558505360638186	1.51843644923507	-0.174532925199433	-0.174532925199433
1.13446401379631	2.61799387799149	-1.27409035395586	-1.27409035395586
0.575958653158129	1.97222205475359	-0.628318530717958	-0.628318530717958
0.593411945678072	1.62315620435473	-0.279252680319092	-0.279252680319092
0.610865238198015	2.0943951023932	-0.750491578357561	-0.750491578357561
0.645771823237902	1.83259571459405	-0.488692190558412	-0.488692190558412
0.715584993317675	1.25663706143592	0.0872664625997166	0.0872664625997166
0.663225115757845	1.32645023151569	0.0174532925199435	0.0174532925199435
0.488692190558412	1.43116998663535	-0.0872664625997162	-0.0872664625997162
0.558505360638186	1.46607657167524	-0.122173047639603	-0.122173047639603
0.349065850398866	2.72271363311115	-1.37881010907552	-1.37881010907552
0.750491578357562	2.00712863979348	-0.663225115757845	-0.663225115757845
0.680678408277789	1.5690509975429	-0.225147473507269	-0.225147473507269
0.68940505453776	1.50098315671512	-0.157079632679489	-0.157079632679489
0.733038285837618	1.62315620435473	-0.279252680319092	-0.279252680319092
0.663225115757845	1.6929693744345	-0.349065850398866	-0.349065850398866
0.628318530717959	1.48352986419518	-0.139626340159546	-0.139626340159546
0.541052068118242	1.58824961931484	-0.244346095279206	-0.244346095279206
0.750491578357562	1.22173047639603	0.122173047639603	0.122173047639603
0.680678408277789	1.34390352403563	0	0
0.733038285837618	1.23918376891597	0.10471975511966	0.10471975511966
0.750491578357562	1.48352986419518	-0.139626340159546	-0.139626340159546
0.785398163397448	1.64060949687467	-0.296705972839036	-0.296705972839036
0.558505360638186	1.58824961931484	-0.244346095279206	-0.244346095279206
0.663225115757845	1.60570291183478	-0.261799387799149	-0.261799387799149
0.820304748437335	1.95476876223365	-0.610865238198015	-0.610865238198015
0.715584993317675	1.6929693744345	-0.349065850398866	-0.349065850398866
0.680678408277789	2.04203522483337	-0.698131700797732	-0.698131700797732
0.750491578357562	1.23918376891597	0.10471975511966	0.10471975511966
0.705113017805709	1.30027029273578	0.0436332312998584	0.0436332312998584
0.593411945678072	1.85004900711399	-0.506145483078355	-0.506145483078355
0.733038285837618	1.2915436464758	0.05235987755983	0.05235987755983
0.619591884457987	1.43116998663535	-0.0872664625997162	-0.0872664625997162
0.820304748437335	1.76278254451427	-0.418879020478639	-0.418879020478639
0.698131700797732	1.44862327915529	-0.10471975511966	-0.10471975511966
0.628318530717959	1.71042266695444	-0.366519142918809	-0.366519142918809
0.785398163397448	2.14675497995303	-0.802851455917392	-0.802851455917392
0.706858347057704	1.34390352403563	0	0
0.733038285837618	1.25663706143592	0.0872664625997166	0.0872664625997166

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0.575958653158129	1.43116998663535	-0.0872664625997162	-0.0872664625997162
0.767944870877505	1.74532925199433	-0.401425727958696	-0.401425727958696
0.593411945678072	1.51843644923507	-0.174532925199433	-0.174532925199433
0.558505360638186	1.71042266695444	-0.366519142918809	-0.366519142918809
0.663225115757845	1.95476876223365	-0.610865238198015	-0.610865238198015
0.767944870877505	1.25663706143592	0.0872664625997166	0.0872664625997166
0.645771823237902	1.34390352403563	0	0
0.820304748437335	2.12930168743308	-0.785398163397448	-0.785398163397448
0.663225115757845	1.43116998663535	-0.0872664625997162	-0.0872664625997162
0.767944870877505	1.57254165604689	-0.228638132011257	-0.228638132011257
0.750491578357562	1.86750229963393	-0.523598775598299	-0.523598775598299

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rad		37		
rad		97		
L	tan(phi) cos LcotB	phi	cot C	
-0.174532925199433	1.57602185161277	1.00538830523655	0.539189344583387	
-1.27409035395586	0.136335164940044	0.135499762217672	-1.60694139021283	
-0.628318530717958	1.24577692476856	0.894403954704784	-0.054035692623869	
-0.279252680319092	1.42512907092451	0.958936478655699	0.144448042242273	
-0.750491578357561	1.04448133119089	0.80715151178039	-0.174591269594668	
-0.488692190558412	1.17171103086565	0.864301176194436	-0.150049337803523	
0.0872664625997166	1.14599090812582	0.853323108599895	1.08677086501822	
0.0174532925199435	1.27974669088296	0.907497313678894	1.27427017521409	
-0.0872664625997162	1.87356973333884	1.08052207508165	2.00655627077207	
-0.122173047639603	1.58840587813842	1.00892318790793	0.806489383697789	
-1.37881010907552	0.524243406225879	0.482853700752783	-0.179139123977247	
-0.663225115757845	0.845038075330819	0.701606348590409	-0.439369624963735	
-0.225147473507269	1.20372982700745	0.877583868167972	-0.269188454647845	
-0.157079632679489	1.19816176695348	0.875303994838205	-0.408724690938045	
-0.279252680319092	1.06758926953503	0.818076418215261	-0.510064802187031	
-0.349065850398866	1.20275170680851	0.877184274696096	-0.17087095489602	
-0.139626340159546	1.3629870662358	0.937820355034903	0.112920802823392	
-0.244346095279206	1.61484326905354	1.01633881469212	0.430179822172564	
0.122173047639603	1.06437543627557	0.816572038177802	1.20957799636936	
0	1.23489715653505	0.890117918517108	#DIV/0!	
0.10471975511966	1.10452846326765	0.835025734019871	1.15352720121244	
-0.139626340159546	1.06193249145503	0.815425274977644	-1.06903891414042	
-0.296705972839036	0.956304755963036	0.763066274736844	-0.763127681622173	
-0.244346095279206	1.55279775414044	0.998651401330617	0.350921900589686	
-0.261799387799149	1.23632867867788	0.890684467780827	-0.16480151717428	
-0.610865238198015	0.763871639139991	0.652320008047145	-0.633662232539915	
-0.349065850398866	1.08099270345082	0.824298753949474	-0.376358303483198	
-0.698131700797732	0.945986104587103	0.757648720357441	-0.288906051251149	
0.10471975511966	1.06649416202738	0.817564345448416	1.39886725000116	
0.0436332312998584	1.17387768924091	0.865213282084278	1.79850913203341	
-0.506145483078355	1.29667704009691	0.913863413155316	-0.0254268347069879	
0.05235987755983	1.10909045897648	0.83707604604228	2.25665861610641	
-0.0872664625997162	1.39661345795609	0.949400903774549	0.342648243953046	
-0.418879020478639	0.85189492112426	0.705593135421347	-0.753918674818148	
-0.10471975511966	1.18522504171874	0.869958493264243	-0.685139168803295	
-0.366519142918809	1.28496322033652	0.909469961001208	-0.0513436998516307	
-0.802851455917392	0.694658370458997	0.607131974472414	-0.529067996192589	
0	1.17084956611254	0.863937979737193	#DIV/0!	
0.0872664625997166	1.10638629890718	0.835861830244317	1.3719085409737	

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-0.0872664625997162	1.53400531272933	0.993094852549125	0.92805096169439
-0.401425727958696	0.953210679741348	0.76144766288526	-0.55603375744071
-0.174532925199433	1.46003753610463	0.970267181444681	0.310890952182709
-0.366519142918809	1.49404099216034	0.980955127729595	0.175238529258452
-0.610865238198015	1.04846680458155	0.809053788982933	-0.228364399263461
0.0872664625997166	1.03158980831145	0.80094621478775	1.97013308022752
0	1.32704482162041	0.925024503556995	#DIV/0!
-0.785398163397448	0.659387740966698	0.582946403913186	-0.609362347049663
-0.0872664625997162	1.27507106785764	0.90572070641638	-0.280388976691224
-0.228638132011257	1.00858163902095	0.789670624440593	-0.816584647185304
-0.523598775598299	0.928698545104924	0.74844630303426	-0.447105126031106

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C(rad)	C(deg)	C corr'n	Bearing w/L corr'n
1.07629091262472	61.66692682168	61.66692682168	241.66692682168
-0.55665553093226	-31.8940138347623	148.105986165238	328.105986165238
-1.51681313437435	-86.9069909096602	93.0930090903398	273.09300909034
1.4273405392262	81.7805888255886	81.7805888255886	261.780588825589
-1.3979472728376	-80.0964787154178	99.9035212845822	279.903521284582
-1.42185812740409	-81.4664697666289	98.5335302333712	278.533530233371
0.743840698242761	42.6189326393744	42.6189326393744	42.6189326393744
0.665380747316003	38.1235085904677	38.1235085904677	38.1235085904677
0.462339785372315	26.490118402818	26.490118402818	206.490118402818
0.892110950130037	51.114192299857	51.114192299857	231.114192299857
-1.39353737253831	-79.8438100401952	100.156189959805	280.156189959805
-1.1568177041339	-66.280772112886	113.719227887114	293.719227887114
-1.30784105023383	-74.9337724523558	105.066227547644	285.066227547644
-1.18279136496051	-67.7689532567552	112.231046743245	292.231046743245
-1.09912933405563	-62.9754719804125	117.024528019587	297.024528019588
-1.40155980034749	-80.3034612951096	99.6965387048904	279.69653870489
1.45835184021831	83.5574054896463	83.5574054896463	263.557405489646
1.16454651690566	66.7236004653546	66.7236004653546	246.723600465355
0.690831291633578	39.5817173661754	39.5817173661754	39.5817173661754
#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
0.714227529843335	40.9222230720771	40.9222230720771	40.9222230720771
-0.752042914171861	-43.0888849947669	136.911115005233	316.911115005233
-0.918946305869315	-52.6517449254498	127.34825507455	307.34825507455
1.23330045132238	70.6629107323523	70.6629107323523	250.662910732352
-1.40746293647926	-80.6416860813513	99.3583139186487	279.358313918649
-1.00599222632314	-57.6391087912857	122.360891208714	302.360891208714
-1.21083534722791	-69.3757550814166	110.624244918583	290.624244918583
-1.28954828457371	-73.885674184409	106.114325815591	286.114325815591
0.620632376912234	35.5596158262436	35.5596158262436	35.5596158262436
0.507450346867877	29.074763187979	29.074763187979	29.074763187979
-1.54537496964888	-88.5434635260388	91.4565364739613	271.456536473961
0.417128709128728	23.8997145468163	23.8997145468163	23.8997145468163
1.24068590955219	71.0860663186902	71.0860663186902	251.08606631869
-0.924791979857058	-52.9866773733569	127.013322626643	307.013322626643
-0.970113858921175	-55.5834297633331	124.416570236667	304.416570236667
-1.51949767271702	-87.0608036266361	92.9391963733639	272.939196373364
-1.08416564423424	-62.1181157077038	117.881884292296	297.881884292296
#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
0.629867338740256	36.0887401629536	36.0887401629536	36.0887401629536

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0.822697835397921	47.1371137828494	47.1371137828494	227.137113782849
-1.06333247816576	-60.924463218085	119.075536781915	299.075536781915
1.26937802328736	72.7300033410246	72.7300033410246	252.730003341025
1.39731922835358	80.0604944171369	80.0604944171369	260.060494417137
-1.34628191734437	-77.136271898613	102.863728101387	282.863728101387
0.469693144795401	26.9114348630036	26.9114348630036	26.9114348630036
#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
-1.02352117257904	-58.6434434310602	121.35655656894	301.35655656894
-1.29742696217864	-74.3370891593158	105.662910840684	285.662910840684
-0.886024286317709	-50.7654521520956	129.234547847904	309.234547847904
-1.15035238638887	-65.9103366928847	114.089663307115	294.089663307115

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<-----Distance Calculations ----->

cos D	D(rad)	Dist(miles)	Kilometer
0.985905272940076	0.168094986815563	665.010492225378	1070.21153250035
0.644110340552756	0.87093666991764	3445.56393103234	5544.99860989911
0.86964514247044	0.516313266526219	2042.6173678328	3287.21529825021
0.972980948393344	0.232987585386413	921.735929044827	1483.36369533457
0.823641368024078	0.602994018831607	2385.54020478997	3839.08625240792
0.925341788431273	0.388860224510564	1538.39287064746	2475.75912099331
0.995270450690886	0.0972962704765382	384.91951453787	619.456848213534
0.999751844635876	0.0222784931410323	88.1372607858517	141.840638664753
0.985005019392592	0.173393229915315	685.971184262919	1103.94389403452
0.991146345807838	0.133167185577663	526.830557573005	847.83645518353
0.349029648910598	1.21426089314314	4803.80914110867	7730.8433518711
0.870702148647317	0.514168124802364	2034.1308461304	3273.55780937913
0.983726201642025	0.180655087587101	714.700247730373	1150.17801424805
0.991461200960564	0.130774451891034	517.36452270276	832.602620825088
0.973203443091789	0.232021962017348	917.915769478312	1477.21585425255
0.961894248951912	0.27694854684396	1095.65248165243	1763.25025723002
0.993559799971175	0.11355284779606	449.233118946649	722.957713146675
0.974187411671185	0.227703348243488	900.830646799212	1449.72050562404
0.990168214077498	0.140342003438972	555.215277712291	893.516418424715
0.999390827019096	0.0349065850398889	138.096000000009	222.240000000014
0.992943432876213	0.118868683565	470.26341038045	756.802082051263
0.988837619943807	0.149554060779126	591.659641118	952.166888556253
0.965592464973817	0.263084316482905	1040.80338215581	1674.98076447042
0.976076548260885	0.219177798095994	867.102214991202	1395.44082565494
0.978403680580514	0.208204244538245	823.689092499289	1325.57542519003
0.886305639114119	0.481490536254344	1904.8531106266	3065.50917699032
0.961214508934547	0.279423821587317	1105.44506206579	1779.00960631373
0.854184822377211	0.546815253082579	2163.28807597207	3481.41251016708
0.991322216424404	0.131835984121568	521.5641129732	839.361085528646
0.997660964346979	0.0684097664105341	270.639911966015	435.544940007872
0.915615387715223	0.413760459199832	1636.90215781262	2634.29161997651
0.9953813244377	0.0961481701169439	380.377446985935	612.147229595022
0.997183187836054	0.0750751032406712	297.009044146743	477.981186791596
0.9377187209863	0.354792133408012	1403.61408597052	2258.85756622994
0.995278083508358	0.0972176656839993	384.608541481696	618.956394529111
0.956933364450385	0.294548325651797	1165.28000469629	1875.30289250742
0.817835365127873	0.613157049668059	2425.74677053643	3903.79129217368
0.998134798421867	0.0610865238198024	241.668000000004	388.920000000006
0.993936244381816	0.110180703714669	435.89238084432	701.488259752937

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0.995015289115765	0.0998885140702826	395.17484231951	635.960903698064
0.946876960389619	0.327414603857726	1295.30422648538	2084.55285666574
0.98857076557699	0.151334545000758	598.703519766955	963.502709948211
0.951209961422309	0.313662326461936	1240.89803071805	1996.99613563593
0.88603404170776	0.482076683356517	1907.1720017507	3069.24100386018
0.990360042574719	0.138963919731538	549.76335947267	884.742563211144
1	0	0	0
0.82527815763407	0.60010175111853	2374.09793389327	3820.67203125681
0.997452891682109	0.0713889395691247	282.425994621726	454.512462668958
0.977595597059194	0.21207812682563	839.014786712787	1350.23929874182
0.916269338445276	0.412130915470002	1630.45542374632	2623.91679247323

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B				
N LAT(Rad)		W Long(Rad)		
0.558505360638186	1.51843644923507	0.645771823237902	1.34390352403563	0.174532925199433
1.13446401379631	2.61799387799149	0.645771823237902	1.34390352403563	1.27409035395586
0.575958653158129	1.97222205475359	0.645771823237902	1.34390352403563	0.628318530717958
0.593411945678072	1.62315620435473	0.645771823237902	1.34390352403563	0.279252680319092
0.610865238198015	2.0943951023932	0.645771823237902	1.34390352403563	0.750491578357561
0.645771823237902	1.83259571459405	0.645771823237902	1.34390352403563	0.488692190558412
0.715584993317675	1.25663706143592	0.645771823237902	1.34390352403563	-0.0872664625997166
0.663225115757845	1.32645023151569	0.645771823237902	1.34390352403563	-0.0174532925199435
0.488692190558412	1.43116998663535	0.645771823237902	1.34390352403563	0.0872664625997162
0.558505360638186	1.46607657167524	0.645771823237902	1.34390352403563	0.122173047639603
0.349065850398866	2.72271363311115	0.645771823237902	1.34390352403563	1.37881010907552
0.750491578357562	2.00712863979348	0.645771823237902	1.34390352403563	0.663225115757845
0.680678408277789	1.5690509975429	0.645771823237902	1.34390352403563	0.225147473507269
0.68940505453776	1.50098315671512	0.645771823237902	1.34390352403563	0.157079632679489
0.733038285837618	1.62315620435473	0.645771823237902	1.34390352403563	0.279252680319092
0.663225115757845	1.6929693744345	0.645771823237902	1.34390352403563	0.349065850398866
0.628318530717959	1.48352986419518	0.645771823237902	1.34390352403563	0.139626340159546
0.541052068118242	1.58824961931484	0.645771823237902	1.34390352403563	0.244346095279206
0.750491578357562	1.22173047639603	0.645771823237902	1.34390352403563	-0.122173047639603
0.680678408277789	1.34390352403563	0.645771823237902	1.34390352403563	0
0.733038285837618	1.23918376891597	0.645771823237902	1.34390352403563	-0.10471975511966
0.750491578357562	1.48352986419518	0.645771823237902	1.34390352403563	0.139626340159546
0.785398163397448	1.64060949687467	0.645771823237902	1.34390352403563	0.296705972839036
0.558505360638186	1.58824961931484	0.645771823237902	1.34390352403563	0.244346095279206
0.663225115757845	1.60570291183478	0.645771823237902	1.34390352403563	0.261799387799149
0.820304748437335	1.95476876223365	0.645771823237902	1.34390352403563	0.610865238198015
0.715584993317675	1.6929693744345	0.645771823237902	1.34390352403563	0.349065850398866
0.680678408277789	2.04203522483337	0.645771823237902	1.34390352403563	0.698131700797732
0.750491578357562	1.23918376891597	0.645771823237902	1.34390352403563	-0.10471975511966
0.705113017805709	1.30027029273578	0.645771823237902	1.34390352403563	-0.0436332312998584
0.593411945678072	1.85004900711399	0.645771823237902	1.34390352403563	0.506145483078355
0.733038285837618	1.2915436464758	0.645771823237902	1.34390352403563	-0.05235987755983
0.619591884457987	1.43116998663535	0.645771823237902	1.34390352403563	0.0872664625997162
0.820304748437335	1.76278254451427	0.645771823237902	1.34390352403563	0.418879020478639
0.698131700797732	1.44862327915529	0.645771823237902	1.34390352403563	0.10471975511966
0.628318530717959	1.71042266695444	0.645771823237902	1.34390352403563	0.366519142918809
0.785398163397448	2.14675497995303	0.645771823237902	1.34390352403563	0.802851455917392
0.706858347057704	1.34390352403563	0.645771823237902	1.34390352403563	0
0.733038285837618	1.25663706143592	0.645771823237902	1.34390352403563	-0.0872664625997166

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0.575958653158129	1.43116998663535	0.645771823237902	1.34390352403563	0.0872664625997162
0.767944870877505	1.74532925199433	0.645771823237902	1.34390352403563	0.401425727958696
0.593411945678072	1.51843644923507	0.645771823237902	1.34390352403563	0.174532925199433
0.558505360638186	1.71042266695444	0.645771823237902	1.34390352403563	0.366519142918809
0.663225115757845	1.95476876223365	0.645771823237902	1.34390352403563	0.610865238198015
0.767944870877505	1.25663706143592	0.645771823237902	1.34390352403563	-0.0872664625997166
0.645771823237902	1.34390352403563	0.645771823237902	1.34390352403563	0
0.820304748437335	2.12930168743308	0.645771823237902	1.34390352403563	0.785398163397448
0.663225115757845	1.43116998663535	0.645771823237902	1.34390352403563	0.0872664625997162
0.767944870877505	1.57254165604689	0.645771823237902	1.34390352403563	0.228638132011257
0.750491578357562	1.86750229963393	0.645771823237902	1.34390352403563	0.523598775598299

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	L	tan(phi) cos LcotB	phi
0.174532925199433	0.174532925199433	1.30688402892648	0.917651327998325
1.27409035395586	1.27409035395586	0.387990356740639	0.370110557586369
0.628318530717958	0.628318530717958	1.07360181298818	0.820877938858489
0.279252680319092	0.279252680319092	1.275637355817	0.905936309634406
0.750491578357561	0.750491578357561	0.970539142506639	0.770448618828403
0.488692190558412	0.488692190558412	1.17171103086565	0.864301176194436
-0.0872664625997166	-0.0872664625997166	1.32199501542836	0.923191110308036
-0.0174532925199435	-0.0174532925199435	1.32684270626639	0.924951294039209
0.0872664625997162	0.0872664625997162	1.32199501542836	0.923191110308036
0.122173047639603	0.122173047639603	1.31715323075488	0.921424856116124
1.37881010907552	1.37881010907552	0.253212089233037	0.247999513622876
0.663225115757845	0.663225115757845	1.045725589955	0.8077462132048
0.225147473507269	0.225147473507269	1.29355179506799	0.912696109703175
0.157079632679489	0.157079632679489	1.31070669776163	0.919060376477274
0.279252680319092	0.279252680319092	1.275637355817	0.905936309634406
0.349065850398866	0.349065850398866	1.24701422632885	0.894888505600951
0.139626340159546	0.139626340159546	1.31413011263955	0.920317856588663
0.244346095279206	0.244346095279206	1.28762591899498	0.910473029623762
-0.122173047639603	-0.122173047639603	1.31715323075488	0.921424856116124
0	0	1.32704482162041	0.925024503556995
-0.10471975511966	-0.10471975511966	1.31977513123658	0.922382331762306
0.139626340159546	0.139626340159546	1.31413011263955	0.920317856588663
0.296705972839036	0.296705972839036	1.26905927429172	0.903424503292907
0.244346095279206	0.244346095279206	1.28762591899498	0.910473029623762
0.261799387799149	0.261799387799149	1.28182686584632	0.908285135125585
0.610865238198015	0.610865238198015	1.08705147849348	0.827084269139415
0.349065850398866	0.349065850398866	1.24701422632885	0.894888505600951
0.698131700797732	0.698131700797732	1.01657531137213	0.793617513308955
-0.10471975511966	-0.10471975511966	1.31977513123658	0.922382331762306
-0.0436332312998584	-0.0436332312998584	1.32578176899928	0.924566771649081
0.506145483078355	0.506145483078355	1.16065955324649	0.859618296795454
-0.05235987755983	-0.05235987755983	1.32522615281326	0.924365239511207
0.0872664625997162	0.0872664625997162	1.32199501542836	0.923191110308036
0.418879020478639	0.418879020478639	1.21231576887946	0.881075066767948
0.10471975511966	0.10471975511966	1.31977513123658	0.922382331762306
0.366519142918809	0.366519142918809	1.23890307054929	0.891701333812733
0.802851455917392	0.802851455917392	0.921842793312885	0.744752715038001
0	0	1.32704482162041	0.925024503556995
-0.0872664625997166	-0.0872664625997166	1.32199501542836	0.923191110308036

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0.0872664625997162	0.0872664625997162	1.32199501542836	0.923191110308036
0.401425727958696	0.401425727958696	1.22155119905052	0.884797653728282
0.174532925199433	0.174532925199433	1.30688402892648	0.917651327998325
0.366519142918809	0.366519142918809	1.23890307054929	0.891701333812733
0.610865238198015	0.610865238198015	1.08705147849348	0.827084269139415
-0.0872664625997166	-0.0872664625997166	1.32199501542836	0.923191110308036
0	0	1.32704482162041	0.925024503556995
0.785398163397448	0.785398163397448	0.938362392306285	0.753610069855076
0.0872664625997162	0.0872664625997162	1.32199501542836	0.923191110308036
0.228638132011257	0.228638132011257	1.2925097637604	0.912306117484824
0.523598775598299	0.523598775598299	1.14925452748386	0.854731640133618

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cot C	C(rad)	C(deg)	C corr'n	Bearing w/L corr'n
0.674821234680712	0.97716948027386	55.9876870886843	55.9876870886843	55.9876870886843
0.0559308627811299	1.51492367690959	86.7987329713598	86.7987329713598	86.7987329713598
0.325563404838435	1.25605493172628	71.9666464245085	71.9666464245085	71.9666464245085
0.316335576071799	1.26442095152219	72.4459840501372	72.4459840501372	72.4459840501372
0.290012560615187	1.28852731863779	73.8271771452541	73.8271771452541	73.8271771452541
0.150049337803523	1.42185812740409	81.4664697666289	81.4664697666289	81.4664697666289
0.973522372851238	0.798813789701653	45.7686587667556	45.7686587667556	225.7686587667556
1.24676286185717	0.676006212949616	38.732302926635	38.732302926635	218.732302926635
2.26793607218176	0.415285374430405	23.7940992483723	23.7940992483723	23.7940992483723
0.927885126692115	0.822786940122203	47.1422191074854	47.1422191074854	47.1422191074854
0.654880662575591	0.990997708651784	56.7799862128824	56.7799862128824	56.7799862128824
0.0222403102844071	1.54855968234123	88.7259341222717	88.7259341222717	88.7259341222717
-0.124593929126251	-1.44684117583973	-82.897893001362	97.1021069986381	97.1021069986381
-0.299078671008486	-1.28018500246275	-73.3491976370604	106.65080236294	106.65080236294
-0.301881536247836	-1.27761424743157	-73.2019042236116	106.798095776388	106.798095776388
0.0446644735326828	1.52616151837499	87.4426138581646	87.4426138581646	87.4426138581646
0.198120656222922	1.37520847963028	78.7936418334176	78.7936418334176	78.7936418334176
0.604255550092982	1.02725361940846	58.8572968816428	58.8572968816428	58.8572968816428
1.03225553102976	0.769527706946455	44.0906898264119	44.0906898264119	224.090689826412
#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
1.00896198543986	0.780937189991258	44.7444050513052	44.7444050513052	224.744405051305
-0.892749059510168	-0.842001743631313	-48.2431462527306	131.756853747269	131.756853747269
-0.490356613476307	-1.11489314578454	-63.878671861518	116.121328138482	116.121328138482
0.516165268440509	1.09430029396289	62.6987883639991	62.6987883639991	62.6987883639991
-0.00337928904357168	-1.56741705061461	-89.8063817370603	90.1936182629397	90.1936182629397
-0.148484575016573	-1.42338878587956	-81.5541700371495	98.4458299628505	98.4458299628505
-0.139697524974731	-1.43199705810554	-82.0473877045975	97.9526122954025	97.9526122954025
0.161070463573854	1.41109749552812	80.8499309752419	80.8499309752419	80.8499309752419
1.21639363863067	0.68807340647	39.4237021859206	39.4237021859206	219.423702185921
1.68830336747733	0.5347463533457	30.63870915672	30.63870915672	210.63870915672
0.279787119218686	1.29798503890273	74.3690646002507	74.3690646002507	74.3690646002507
2.06767585490248	0.450469945355027	25.8100266663319	25.8100266663319	205.810026666332
0.401428974850158	1.18905868214124	68.1280440800807	68.1280440800807	68.1280440800807
-0.379120564327907	-1.20841800994992	-69.2372518577281	110.762748142272	110.762748142272
-0.593239939583449	-1.03536228653631	-59.3218892855451	120.678110714455	120.678110714455
0.169918170044281	1.40248570221801	80.3565115645333	80.3565115645333	80.3565115645333
0.057894105732942	1.5129667730502	86.6866106393042	86.6866106393042	86.6866106393042
#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
1.22292078495365	0.685449490044084	39.2733628489205	39.2733628489205	219.273362848921

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1.02594598247416	0.772592015393026	44.2662617675267	44.2662617675267	44.2662617675267
-0.249212244568371	-1.32655921785916	-76.0062444575051	103.993755542495	103.993755542495
0.426305157436384	1.16782071885254	66.9111984181842	66.9111984181842	66.9111984181842
0.402736419403141	1.18793319562233	68.0635584526483	68.0635584526483	68.0635584526483
0.156018157529647	1.41602591001974	81.1323083253027	81.1323083253027	81.1323083253027
1.720524212904	0.526494871089502	30.1659340487128	30.1659340487128	210.165934048713
#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
-0.00455735337006862	-1.56623900497571	-89.7388846938775	90.2611153061225	90.2611153061225
-0.223852175643198	-1.35057466838315	-77.3822284156351	102.617771584365	102.617771584365
-0.593507003653366	-1.03516476739205	-59.3105722722063	120.689427727794	120.689427727794
-0.0790267224813077	-1.49193350376215	-85.4814930797365	94.5185069202635	94.5185069202635

Sheet1

<-----Distance Calculations ----->

cos D	D(rad)	Dist(miles)	Kilometer
0.985905272940076	0.168094986815563	665.010492225378	1070.21153250035
0.644110340552756	0.87093666991764	3445.56393103234	5544.99860989911
0.86964514247044	0.516313266526219	2042.6173678328	3287.21529825021
0.972980948393344	0.232987585386413	921.735929044827	1483.36369533457
0.823641368024078	0.602994018831607	2385.54020478997	3839.08625240792
0.925341788431273	0.388860224510564	1538.39287064746	2475.75912099331
0.995270450690886	0.0972962704765382	384.91951453787	619.456848213534
0.999751844635876	0.0222784931410323	88.1372607858517	141.840638664753
0.985005019392592	0.173393229915315	685.971184262919	1103.94389403452
0.991146345807838	0.133167185577663	526.830557573005	847.83645518353
0.349029648910598	1.21426089314314	4803.80914110867	7730.8433518711
0.870702148647317	0.514168124802364	2034.1308461304	3273.55780937913
0.983726201642025	0.180655087587101	714.700247730373	1150.17801424805
0.991461200960564	0.130774451891034	517.36452270276	832.602620825088
0.973203443091789	0.232021962017348	917.915769478312	1477.21585425255
0.961894248951912	0.27694854684396	1095.65248165243	1763.25025723002
0.993559799971175	0.11355284779606	449.233118946649	722.957713146675
0.974187411671185	0.227703348243488	900.830646799212	1449.72050562404
0.990168214077498	0.140342003438972	555.215277712291	893.516418424715
0.999390827019096	0.0349065850398889	138.096000000009	222.240000000014
0.992943432876213	0.118868683565	470.26341038045	756.802082051263
0.988837619943807	0.149554060779126	591.659641118	952.166888556253
0.965592464973817	0.263084316482905	1040.80338215581	1674.98076447042
0.976076548260885	0.219177798095994	867.102214991202	1395.44082565494
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0.995015289115765	0.0998885140702826	395.17484231951	635.960903698064
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