

Math to calculate cutting angle for diagonal brace:

Given following information:

A = width of rectangle

B = height of rectangle

C = length of diagonal

\emptyset° = angle diagonal makes with bottom

Want to calculate C and \emptyset°

$C = \text{SQRT}(A^2 + B^2)$ [Pythagorean theorem]

$\text{TAN } \emptyset^\circ = A / B$ and

$\emptyset^\circ = \text{ARCTAN}(A / B)$

Example:

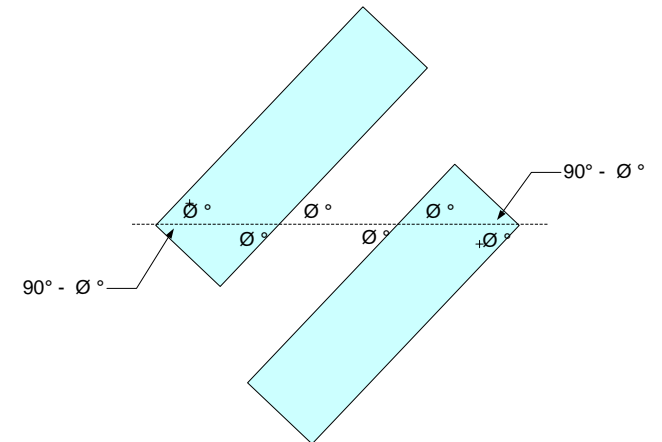
If A = 96" and B = 85" then

$C = \text{SQRT}(96^2 + 85^2) = 128.22"$

And

$\emptyset^\circ = \text{ARCTAN}(96/85) = 48.48^\circ$

Cutout: Exploded view of bottom and top corner



Trig. Tables

Trigonometric Tables									
Angle	Sin	Cos	Tan	Csc	Angle	Sin	Cos	Tan	Csc
1	0.017	1.000	0.017	57.299	46	0.719	0.695	1.036	1.390
2	0.035	0.999	0.035	28.654	47	0.731	0.682	1.072	1.367
3	0.052	0.999	0.052	19.107	48	0.743	0.669	1.111	1.346
4	0.070	0.998	0.070	14.336	49	0.755	0.656	1.150	1.325
5	0.087	0.996	0.087	11.474	50	0.766	0.643	1.192	1.305
6	0.105	0.995	0.105	9.567	51	0.777	0.629	1.235	1.287
7	0.122	0.993	0.123	8.206	52	0.788	0.616	1.280	1.269
8	0.139	0.990	0.141	7.185	53	0.799	0.602	1.327	1.252
9	0.156	0.988	0.158	6.392	54	0.809	0.588	1.376	1.236
10	0.174	0.985	0.176	5.759	55	0.819	0.574	1.428	1.221
11	0.191	0.982	0.194	5.241	56	0.829	0.559	1.483	1.206
12	0.208	0.978	0.213	4.810	57	0.839	0.545	1.540	1.192
13	0.225	0.974	0.231	4.445	58	0.848	0.530	1.600	1.179
14	0.242	0.970	0.249	4.134	59	0.857	0.515	1.664	1.167
15	0.259	0.966	0.268	3.864	60	0.866	0.500	1.732	1.155
16	0.276	0.961	0.287	3.628	61	0.875	0.485	1.804	1.143
17	0.292	0.956	0.306	3.420	62	0.883	0.469	1.881	1.133
18	0.309	0.951	0.325	3.236	63	0.891	0.454	1.963	1.122
19	0.326	0.946	0.344	3.072	64	0.899	0.438	2.050	1.113
20	0.342	0.940	0.364	2.924	65	0.906	0.423	2.145	1.103
21	0.358	0.934	0.384	2.790	66	0.914	0.407	2.246	1.095
22	0.375	0.927	0.404	2.669	67	0.921	0.391	2.356	1.086
23	0.391	0.921	0.424	2.559	68	0.927	0.375	2.475	1.079
24	0.407	0.914	0.445	2.459	69	0.934	0.358	2.605	1.071
25	0.423	0.906	0.466	2.366	70	0.940	0.342	2.747	1.064
26	0.438	0.899	0.488	2.281	71	0.946	0.326	2.904	1.058
27	0.454	0.891	0.510	2.203	72	0.951	0.309	3.078	1.051
28	0.469	0.883	0.532	2.130	73	0.956	0.292	3.271	1.046
29	0.485	0.875	0.554	2.063	74	0.961	0.276	3.487	1.040
30	0.500	0.866	0.577	2.000	75	0.966	0.259	3.732	1.035
31	0.515	0.857	0.601	1.942	76	0.970	0.242	4.011	1.031
32	0.530	0.848	0.625	1.887	77	0.974	0.225	4.331	1.026
33	0.545	0.839	0.649	1.836	78	0.978	0.208	4.705	1.022
34	0.559	0.829	0.675	1.788	79	0.982	0.191	5.145	1.019
35	0.574	0.819	0.700	1.743	80	0.985	0.174	5.671	1.015
36	0.588	0.809	0.727	1.701	81	0.988	0.156	6.314	1.012
37	0.602	0.799	0.754	1.662	82	0.990	0.139	7.115	1.010
38	0.616	0.788	0.781	1.624	83	0.993	0.122	8.144	1.008
39	0.629	0.777	0.810	1.589	84	0.995	0.105	9.514	1.006
40	0.643	0.766	0.839	1.556	85	0.996	0.087	11.430	1.004
41	0.656	0.755	0.869	1.524	86	0.998	0.070	14.301	1.002
42	0.669	0.743	0.900	1.494	87	0.999	0.052	19.081	1.001
43	0.682	0.731	0.933	1.466	88	0.999	0.035	28.636	1.001
44	0.695	0.719	0.966	1.440	89	1.000	0.017	57.290	1.000
45	0.707	0.707	1.000	1.414	90	1.000	0.000		1.000