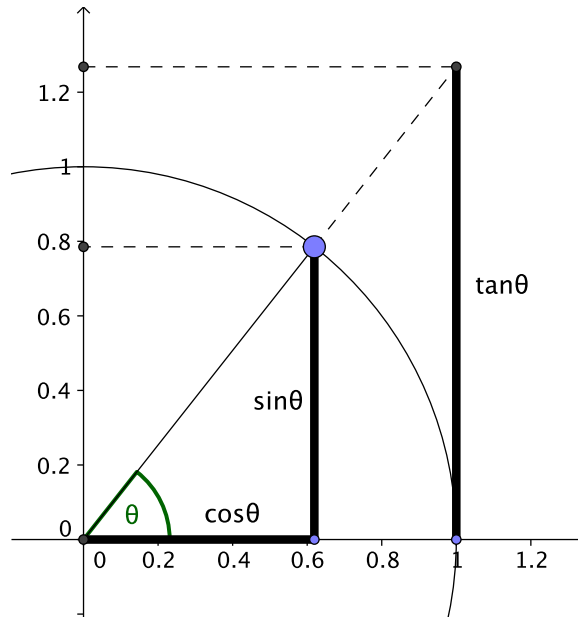
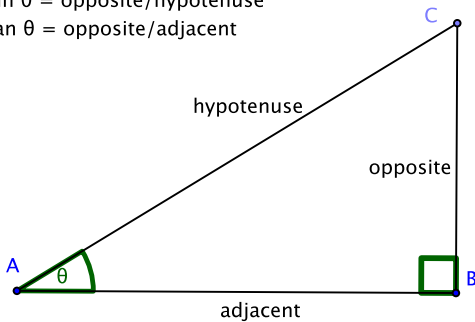


If you use a calculator, make sure it is in "degree mode"!

SOHCAHTOA:

S in =
 O pposite /
 H ypotenuse.
 C os =
 A djacent /
 H ypotenuse.
 T an =
 O pposite /
 A djacent.

$\cos \theta = \text{adjacent/hypotenuse}$
 $\sin \theta = \text{opposite/hypotenuse}$
 $\tan \theta = \text{opposite/adjacent}$



Solving a triangle: Given some angles and some sides of a triangle, find the rest.

For example, Given a right triangle with an acute angle of 35° and an opposite side of 10, find the hypotenuse, x . Solution: What trig function involves the opposite and the hypotenuse? The sine is opposite over hypotenuse. Using calculator or trig table we find that $\sin 35^\circ \approx .574$. Thus $.574 \approx \frac{10}{x}$.

Using simple algebra we find $x \approx \frac{10}{.574} \approx 17.4$.

If we know sides and need to know an angle, we can use inverse trig functions to find the angle. For example, if the opposite is 7 and the adjacent is 5, what is the angle? To solve, note that the tangent is the opposite over the adjacent. So $\tan \theta = \frac{7}{5} = 1.4$. We can use the calculator to find that $\tan^{-1}(1.4) \approx 54^\circ$. This means that 54° is the angle whose tangent is 1.4. Or we can look for 1.4 in the tangent column of a trig table to find that the angle whose tangent is 1.4 is about 54° . In either case this tells us that the angle is about 54° .

Trig table:

θ	$\cos \theta$	$\sin \theta$	$\tan \theta$	θ	$\cos \theta$	$\sin \theta$	$\tan \theta$	θ	$\cos \theta$	$\sin \theta$	$\tan \theta$
0	1.000	0.000	0.000	30	0.866	0.500	0.577	60	0.500	0.866	1.732
1	1.000	0.017	0.017	31	0.857	0.515	0.601	61	0.485	0.875	1.804
2	0.999	0.035	0.035	32	0.848	0.530	0.625	62	0.469	0.883	1.881
3	0.999	0.052	0.052	33	0.839	0.545	0.649	63	0.454	0.891	1.963
4	0.998	0.070	0.070	34	0.829	0.559	0.675	64	0.438	0.899	2.050
5	0.996	0.087	0.087	35	0.819	0.574	0.700	65	0.423	0.906	2.145
6	0.995	0.105	0.105	36	0.809	0.588	0.727	66	0.407	0.914	2.246
7	0.993	0.122	0.123	37	0.799	0.602	0.754	67	0.391	0.921	2.356
8	0.990	0.139	0.141	38	0.788	0.616	0.781	68	0.375	0.927	2.475
9	0.988	0.156	0.158	39	0.777	0.629	0.810	69	0.358	0.934	2.605
10	0.985	0.174	0.176	40	0.766	0.643	0.839	70	0.342	0.940	2.747
11	0.982	0.191	0.194	41	0.755	0.656	0.869	71	0.326	0.946	2.904
12	0.978	0.208	0.213	42	0.743	0.669	0.900	72	0.309	0.951	3.078
13	0.974	0.225	0.231	43	0.731	0.682	0.933	73	0.292	0.956	3.271
14	0.970	0.242	0.249	44	0.719	0.695	0.966	74	0.276	0.961	3.487
15	0.966	0.259	0.268	45	0.707	0.707	1.000	75	0.259	0.966	3.732
16	0.961	0.276	0.287	46	0.695	0.719	1.036	76	0.242	0.970	4.011
17	0.956	0.292	0.306	47	0.682	0.731	1.072	77	0.225	0.974	4.331
18	0.951	0.309	0.325	48	0.669	0.743	1.111	78	0.208	0.978	4.705
19	0.946	0.326	0.344	49	0.656	0.755	1.150	79	0.191	0.982	5.145
20	0.940	0.342	0.364	50	0.643	0.766	1.192	80	0.174	0.985	5.671
21	0.934	0.358	0.384	51	0.629	0.777	1.235	81	0.156	0.988	6.314
22	0.927	0.375	0.404	52	0.616	0.788	1.280	82	0.139	0.990	7.115
23	0.921	0.391	0.424	53	0.602	0.799	1.327	83	0.122	0.993	8.144
24	0.914	0.407	0.445	54	0.588	0.809	1.376	84	0.105	0.995	9.514
25	0.906	0.423	0.466	55	0.574	0.819	1.428	85	0.087	0.996	11.430
26	0.899	0.438	0.488	56	0.559	0.829	1.483	86	0.070	0.998	14.301
27	0.891	0.454	0.510	57	0.545	0.839	1.540	87	0.052	0.999	19.081
28	0.883	0.469	0.532	58	0.530	0.848	1.600	88	0.035	0.999	28.636
29	0.875	0.485	0.554	59	0.515	0.857	1.664	89	0.017	1.000	57.290
30	0.866	0.500	0.577	60	0.500	0.866	1.732	90	0.000	1.000	(undef.)