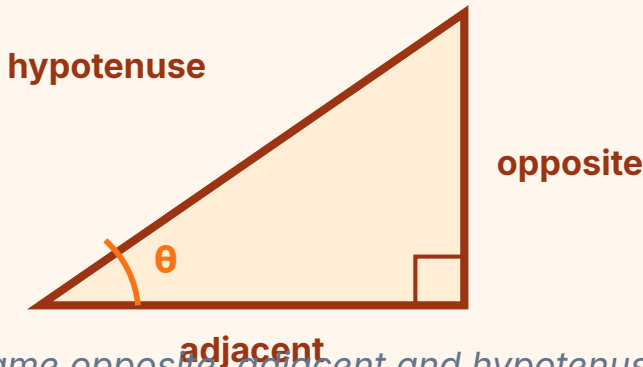


Right-Triangle Trig

10th Grade

SOH-CAH-TOA, the special triangles, and the unit circle in one place.

SOH · CAH · TOA



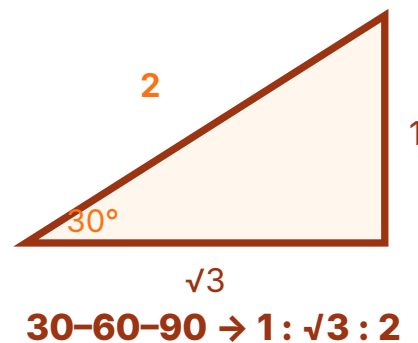
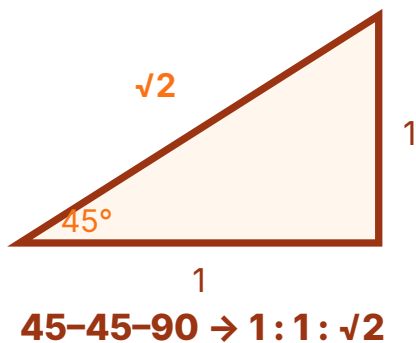
$$\sin \theta = \text{opp} / \text{hyp}$$

$$\cos \theta = \text{adj} / \text{hyp}$$

$$\tan \theta = \text{opp} / \text{adj}$$

Name opposite, adjacent and hypotenuse relative to θ before you choose a ratio.

THE SPECIAL TRIANGLES



EXACT VALUES

θ	0°	30°	45°	60°	90°
sin	0	$1/2$	$\sqrt{2}/2$	$\sqrt{3}/2$	1
cos	1	$\sqrt{3}/2$	$\sqrt{2}/2$	$1/2$	0
tan	0	$\sqrt{3}/3$	1	$\sqrt{3}$	—

Missing an angle? Use the inverse: $\theta = \sin^{-1}(\text{opp}/\text{hyp})$.

Not a right triangle? Law of sines $a/\sin A = b/\sin B$ · Law of cosines $c^2 = a^2 + b^2 - 2ab \cdot \cos C$