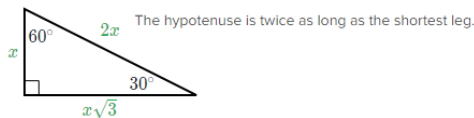


6.1 Special Right Triangles & Trig Review

30-60-90 triangles

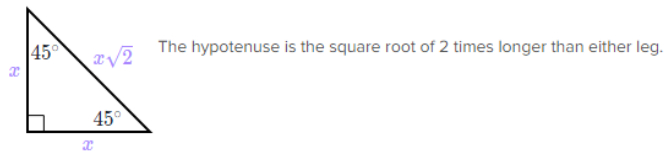
A 30-60-90 triangle is a right triangle with a 30° degree angle and a 60° degree angle.



The longer leg is the square root of 3 times the shorter leg.

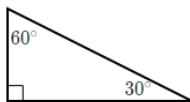
45-45-90 triangles

A 45-45-90 triangle is a right triangle with two 45° degree angles.

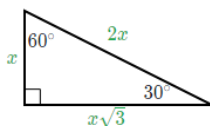


The hypotenuse is the square root of 2 times longer than either leg.

Step 1: Draw the special triangle that includes the angle of interest.



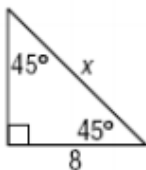
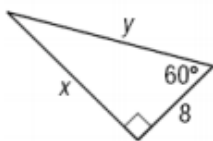
Step 2: Label the sides of the triangle according to the ratios of that special triangle.



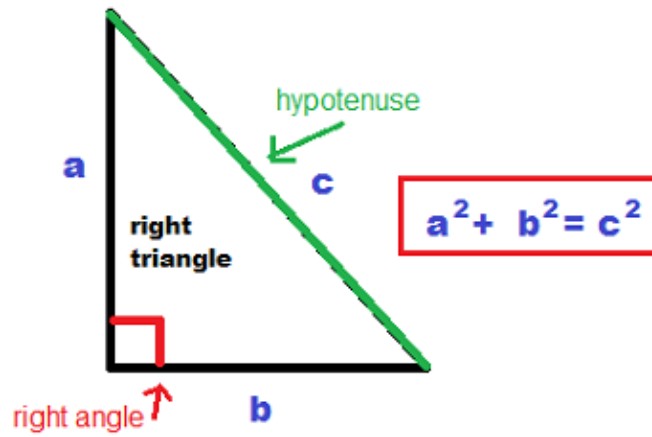
Step 3: Use the definition of the trigonometric ratios to find the value of the indicated expression.

$$\begin{aligned} \sin(30^\circ) &= \frac{\text{opposite}}{\text{hypotenuse}} \\ &= \frac{x}{2x} \\ &= \frac{1}{2} \end{aligned}$$

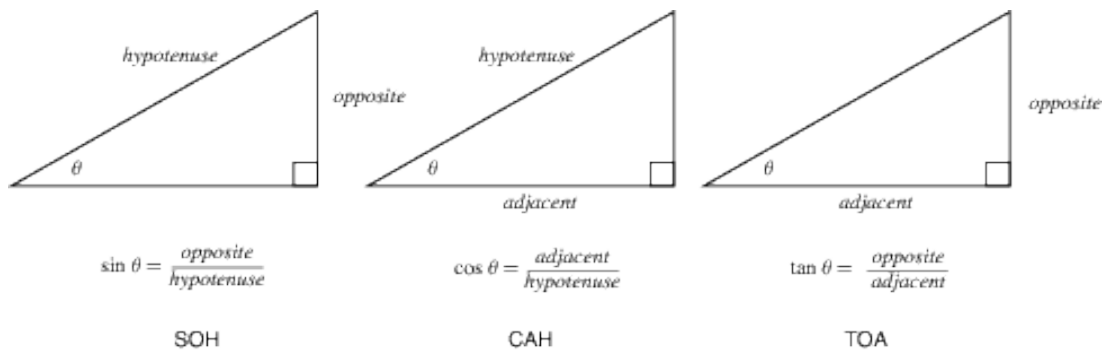
Ex)



Pythagorean Theorem



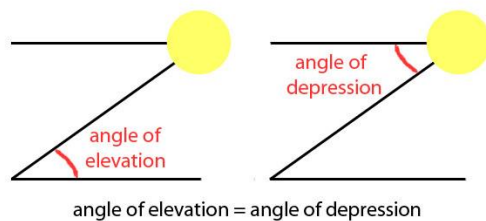
SohCahToa



Angles of Elevation & Depression

When you see an object above you, there's an angle of elevation between the horizontal and your line of sight to the object.

Similarly, when you see an object below you, there's an angle of depression between the horizontal and your line of sight to the object.



1. Brian's kite is flying above a field at the end of 65 m of string. If the angle of elevation to the kite measures 70° , and Brian is holding the kite 1.2 m off the ground. How high above the ground is the kite flying?
2. From an airplane at an altitude (height) of 1200 m, the angle of depression to a rock on the ground measures 28° . Find the distance from the plane to the rock.