6-1 Solving Right Triangles

Objectives:

6-1a: I can write all six trigonometric ratios from a right triangle.

6-1b: I can solve right triangles using trigonometric functions.

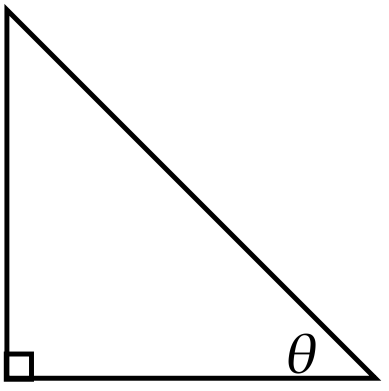
Trig Functions

$\sin\theta = \frac{o}{h}$ $\quad \csc\theta = \frac{h}{o}$ cosecant

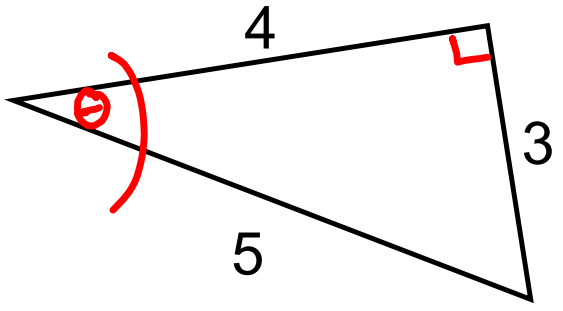
$\cos\theta = \frac{a}{h}$ $\quad \sec\theta = \frac{h}{a}$ secant

$\tan\theta = \frac{o}{a}$ $\quad \cot\theta = \frac{a}{o}$ cotangent

SohCahToa



Write all six trig functions for the given right triangle.



$\sin\theta = \frac{3}{5}$ $\quad \csc\theta =$

$\cos\theta =$ $\quad \sec\theta =$

$\tan\theta =$ $\quad \cot\theta =$

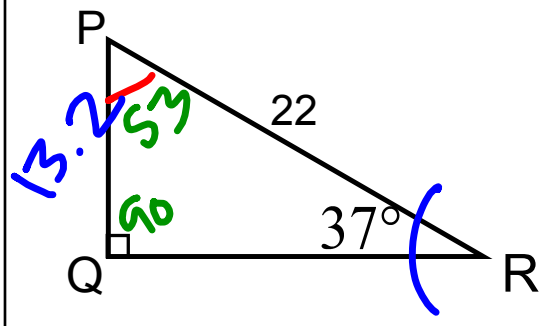
To "solve" a triangle means to find ALL side lengths and angle measures.

REMEMBER

- Soh Cah Toa
- angles add up to 180
- Pythagorean Thm $a^2 + b^2 = c^2$

January 4, 2019

Solve each right triangle. Round lengths to the nearest tenth and angles to the nearest degree.



$\measuredangle P =$ $p =$

$\measuredangle Q =$ $q =$

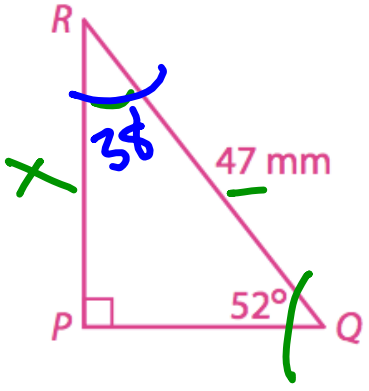
$\measuredangle R =$ $r =$

$\sin(37) = \frac{x}{22}$

$13.2^2 + b^2 = 22^2$

Your Turn!

Solve each right triangle. Round lengths to the nearest tenth and angles to the nearest degree.



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January 4, 2019

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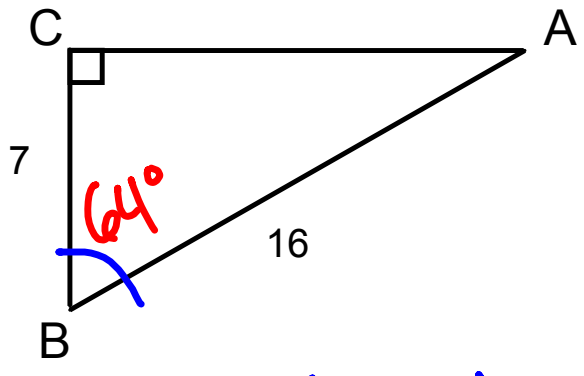

$\cos^{-1}\left(\frac{7}{16}\right)$

A building casts a 33-m shadow when the Sun is at an angle of 27° to the vertical. How tall is the building, to the nearest meter? How far is it from the top of the building to the tip of the shadow? What angle does a ray from the Sun along the edge of the shadow make with the ground?