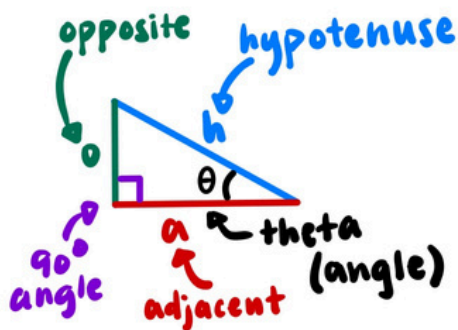


Right Triangles

& SohCahToa (Pronounced So-Cuh-Toe-uh)

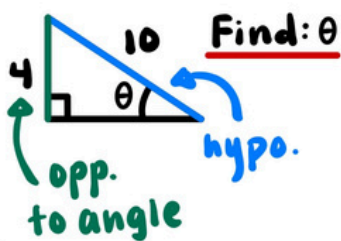
'SohCahToa' is a way of remembering the right triangle trigonometric relations. For right triangles, where one angle is 90 degrees, when you take the sine, cosine, or tangent of a non-90 degree angle, it can equal the ratio of two of the sides (one side divided by another).

- 'Soh' means the sine of an angle is equal to the magnitude of the opposite side divided by the magnitude of the hypotenuse.
- 'Cah' means the cosine is equal to the adjacent side over the hypotenuse.
- 'Toa' means the tangent is equal to the opposite side over the adjacent side.



$$\sin \theta = \frac{o}{h} \quad \cos \theta = \frac{a}{h} \quad \tan \theta = \frac{o}{a}$$
$$\theta = \sin^{-1}\left(\frac{o}{h}\right) \quad \theta = \cos^{-1}\left(\frac{a}{h}\right) \quad \theta = \tan^{-1}\left(\frac{o}{a}\right)$$

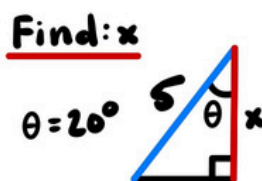
Example 1



$$\sin \theta = \frac{o}{h} = \frac{4}{10}$$
$$\theta = \sin^{-1}\left(\frac{4}{10}\right)$$

$$\theta = 23^\circ$$

Example 2

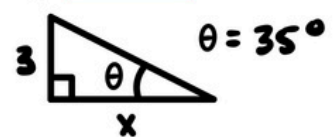


$$\cos \theta = \frac{a}{h}$$
$$\cos 20^\circ = \frac{x}{5}$$
$$x = 5 \cdot \cos 20^\circ$$

$$x = 4.7$$

Now you try!

1) Find: x



2) Find: θ



Answers: 1) $x \approx 4.28$
2) $\theta \approx 34.5^\circ$

