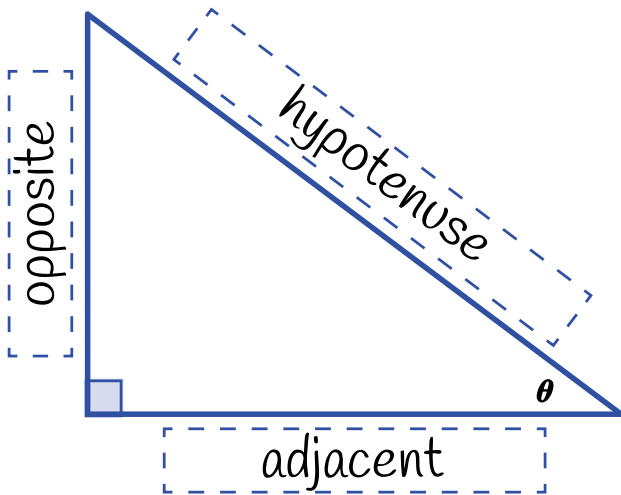# GUIDED NOTES: RIGHT-TRIANGLE TRIGONOMETRY
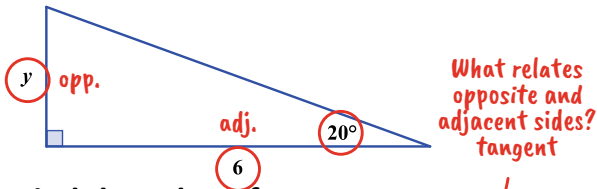


$$\sin\theta = \frac{opposite}{hypotenuse}$$

$$\cos\theta = \frac{adjacent}{hypotenuse}$$

$$\tan\theta = \frac{opposite}{adjacent}$$

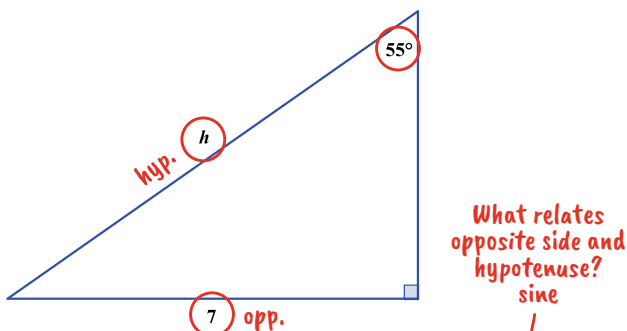## Find the Missing Side:



*What relates opposite and adjacent sides? tangent*

**Find the value of $y$.**

$$\tan(20°) = \frac{y}{6}$$

$$\Rightarrow y = 6 \cdot \tan(20°)$$

$$\Rightarrow y \approx 2.2$$



*What relates opposite side and hypotenuse? sine*

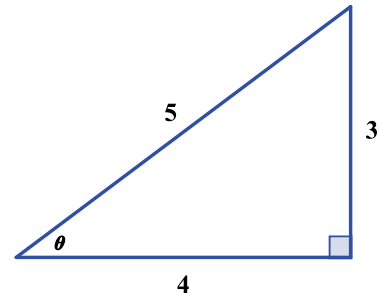**Find the value of $h$.**

$$\sin(55°) = \frac{7}{h}$$

$$\Rightarrow h = \frac{7}{\sin(55°)}$$

$$\Rightarrow h \approx 8.5$$

## Find the Missing Angle:



**Find the value of $\theta$.**

$$\sin\theta = \frac{3}{5} \quad \frac{opp.}{hyp.}$$

$$\Rightarrow \theta = \sin^{-1}\left(\frac{3}{5}\right)$$

$$\cos\theta = \frac{4}{5} \quad \frac{adj.}{hyp.}$$

$$\Rightarrow \theta = \cos^{-1}\left(\frac{4}{5}\right)$$

*inverse, then use calculator*

$$\tan\theta = \frac{3}{4} \quad \frac{opp.}{adj.}$$

$$\Rightarrow \theta = \tan^{-1}\left(\frac{3}{4}\right)$$

$$\theta \approx 37°$$