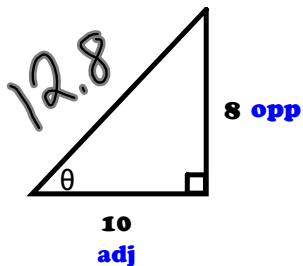


Finding a Missing Side AND Angle in the SAME right triangle.

Example 1: Find the measure of the indicated angle and missing side.



Solution: Missing Angle

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

$$\tan \theta = \frac{8}{10}$$

$$\tan \theta = 0.8000$$

$$\theta = \tan^{-1}(0.8000)$$

$$\theta = 39^\circ$$

Missing Side

$$c^2 = a^2 + b^2$$

$$c^2 = (10)^2 + (8)^2$$

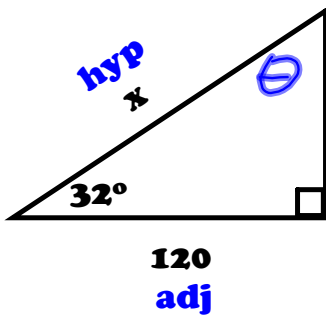
$$c^2 = 100 + 64$$

$$c^2 = 164$$

$$c = \sqrt{164}$$

$$c = 12.8$$

Example 2: Find the length of the indicated side and measure of the missing angle.



Solution: Missing Angle

$$180^\circ - 90^\circ - 32^\circ = 58^\circ$$



Missing Side

$$\cos 32^\circ = \frac{\text{adj}}{\text{hyp}}$$

$$\cos 32^\circ = \frac{120}{x}$$

$$x \cos 32^\circ = 120$$

$$\cos 32^\circ \quad \cos 32^\circ$$

$$x = \frac{120}{0.8480}$$

$$0.8480$$

$$x = 141.5 \text{ or } 142$$