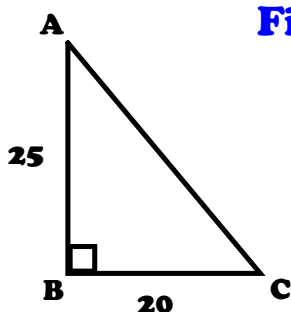


Solving a Triangle

Example 3: Solve the following triangle.
Find all missing sides and angles!



Solution: Missing Side

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

$$c^2 = (20)^2 + (25)^2$$

$$c^2 = 400 + 625$$

$$c^2 = 1025$$

$$c = \sqrt{1025}$$

$$c = 32$$

Side AC = 32

Angle "A"

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

$$\tan A = \frac{20}{25}$$

$$\tan A = 0.8000$$

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

$$A = 39^\circ$$

Angle "C"

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

$$\tan C = \frac{25}{20}$$

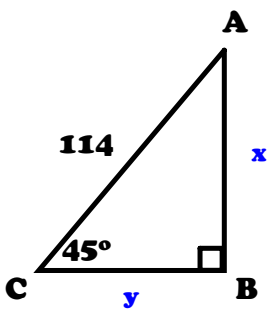
$$\tan C = 1.2500$$

$$C = \tan^{-1}(1.2500)$$

$$C = 51^\circ$$

Example 4: Solve the following triangle.

Find all missing sides and angles!



Solution: Angle "A"

$$180^\circ - 90^\circ - 45^\circ = 45^\circ$$

Side "AB"

$$\sin 45^\circ = \frac{\text{opp}}{\text{hyp}}$$

$$\frac{\sin 45^\circ}{1} = \frac{x}{114}$$

$$114 \sin 45^\circ = x$$

$$114 (0.7071) = x$$

$$80.6 = x$$

$$\text{Side AB} = 80.6$$

Side "CB"

$$\cos 45^\circ = \frac{\text{adj}}{\text{hyp}}$$

$$\frac{\cos 45^\circ}{1} = \frac{y}{114}$$

$$114 \cos 45^\circ = y$$

$$114 (0.7071) = y$$

$$80.6 = y$$

$$\text{Side CB} = 80.6$$