

Alice

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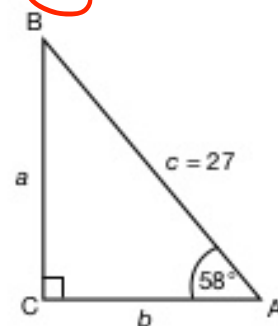
Solution:

- a. To find B , since B and $\angle A$ are complementary angles, then

$$\angle B + \angle A = 90^\circ$$

$$\angle B = 90^\circ - 58^\circ$$

$$\angle B = 32^\circ$$



- b. To find b , since b is the adjacent side of $\angle A$ and c is the hypotenuse of right $\triangle BCA$, then use CAH.

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

$$\cos A = \frac{b}{c}$$

$$\cos 58^\circ = \frac{b}{27}$$

$$b = 27 \cos 58^\circ$$

$$b = 27 (0.5299)$$

$$b = 14.31$$

- c. To find a , since a is the opposite side of $\angle A$ and c is the hypotenuse of right $\triangle BCA$, then use SOH.

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

$$\sin A = \frac{a}{c}$$

$$\sin 58^\circ = \frac{a}{27}$$

$$a = 27 \sin 58^\circ$$

$$a = 27 (0.8480)$$

$$a = 22.9$$

- C. Solving a Right Triangle Given the Length of One Leg and the Measure of One Acute Angle

Example:

Triangle ACB is right-angled at C. If $\angle A = 63^\circ$ and $a = 11$ cm, find $\angle B$, b , and c .