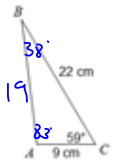


Solve the triangle. Round your answers to the nearest tenth.

1)



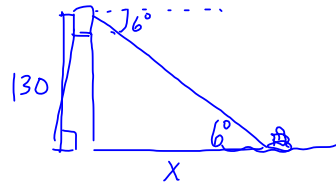
$$c^2 = 9^2 + 22^2 - 2 \cdot 9 \cdot 22 \cos 59^\circ$$

$$c = 19$$

$$\frac{\sin A}{a} = \frac{\sin 59}{19}$$

$$A = 73^\circ \quad B = 38^\circ$$

Example 1: The angle of depression of a buoy from the top of the Barnegat Bay lighthouse 130 feet above the surface of the water is 6° . Find the distance from the base of the lighthouse to the buoy.



Schläh Toa

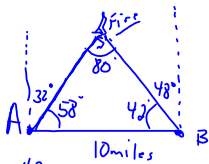
$$\tan 6^\circ = \frac{130}{x}$$

$$x \tan 6^\circ = 130$$

$$x = \frac{130}{\tan 6^\circ}$$

$$x = 1236.87 \text{ ft.}$$

Example 2: Forest Ranger Chris Johnson at ranger station A sights a fire in the direction $N32^\circ E$ (32° east of north). Ranger Rick Thorpe at ranger station B, 10 miles due east of station A, sights the same fire on a line of $N48^\circ W$ (48° west of north). Find the distance from each ranger station to the fire.



$$\frac{\sin 80}{10} = \frac{\sin 42}{b}$$

$$b \sin 80 = 10 \sin 42$$

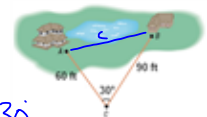
$$b = 6.79 \text{ miles}$$

$$\frac{\sin 80}{10} = \frac{\sin 58}{a}$$

$$a \sin 80 = 10 \sin 58$$

$$a = 8.61 \text{ miles}$$

To find the distance from the house at A to the house at B, a surveyor measures the angle ACB , which is found to be 30° , and then walks off the distance to each house, 60 feet and 90 feet, respectively. How far apart are the houses?



$$c^2 = 60^2 + 90^2 - 2(60)(90) \cos 30^\circ$$

$$c = 48.45 \text{ ft.}$$