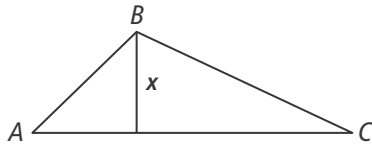




8-2 Additional Practice

Law of Sines and Law of Cosines

1. How can you derive the Law of Sines for angles A and C?



$$\sin A = \frac{x}{c} \text{ or } x = c \sin A \text{ and } \sin C = \frac{x}{a} \text{ or } x = a \sin C$$

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

2. In $\triangle MNO$, $m\angle M = 135^\circ$, $m = 18$, and $n = 14$. Find $m\angle O$. Round your answer to the nearest tenth.

$$11.6^\circ$$

3. In $\triangle ABC$, $m\angle A = 60^\circ$, $a = 8$, and $b = 6$. Find $m\angle B$. Round your answer to the nearest tenth.

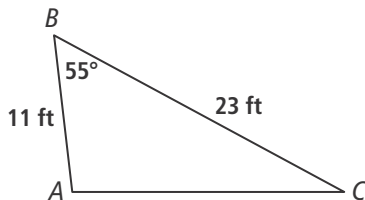
$$40.5^\circ$$

4. Describe and correct the error a student made in using the Law of Cosines to solve for b in $\triangle ABC$ where $m\angle B = 120^\circ$, $a = 16$, and $c = 14$.

The student did not multiply $ac \cos B$ by 2.

$b^2 = 16^2 + 14^2 - (16)(14)(\cos 120^\circ)$	$b^2 = 16^2 + 14^2 - \underline{2} (16)(14)(\cos 120^\circ)$
$b^2 = 256 + 196 - (224)(-0.5)$	$b^2 = 256 + 196 - (\underline{448})(-0.5)$
$b^2 = 256 + 196 + 112 = 564$	$b^2 = 256 + 196 + \underline{224} = 676$
$b \approx 23.7$	$b = \underline{26}$

5. The triangle illustrates the side view of a roof truss with edge-lengths of 11 ft and 23 ft. The angle between the edges is 55° . What is the length of AC to the nearest foot? **19 ft**



6. Dyani throws a ball to Edgar, who is 8 m away. When Edgar catches the ball, he turns 55° , and then throws the ball 9 m to Hana. What angle does Hana turn to throw the ball to Dyani? Round to the nearest tenth.

$$56.1^\circ$$