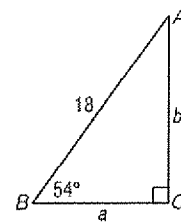## 13-1 Study Guide and Intervention

Right Triangle Trigonometry

Right Triangle Problems

Example Solve $\triangle ABC$. Round measures of sides to the nearest tenth and measures of angles to the nearest degree.

You know the measures of one side, one acute angle, and the right angle. You need to find a, b, and A.

Find a and b.

$$\sin 54° = \frac{b}{18} \qquad\qquad \cos 54° = \frac{a}{18}$$
$$b = 18 \sin 54° \qquad\qquad a = 18 \cos 54°$$
$$b \approx 14.6 \qquad\qquad\quad a \approx 10.6$$

Find A.

$54° + A = 90°$ Angles A and B are complementary.

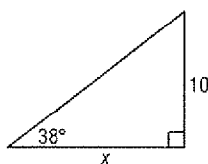$\qquad A = 36°$ Solve for A.

Therefore $A = 36°$, $a \approx 10.6$, and $b \approx 14.6$.

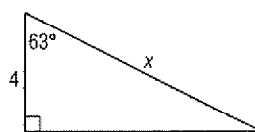**Exercises**

Write an equation involving sin, cos, or tan that can be used to find x. Then solve the equation. Round measures of sides to the nearest tenth.
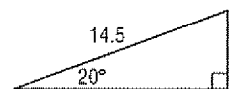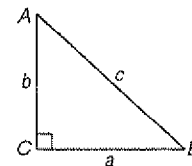
1.

2.

3.

Solve $\triangle ABC$ by using the given measurements. Round measures of sides to the nearest tenth and measures of angles to the nearest degree.

4. $A = 80°$, $b = 6$

5. $B = 25°$, $c = 20$

6. $b = 8$, $c = 14$

7. $a = 6$, $b = 7$

8. $a = 12$, $B = 42°$

9. $a = 15$, $A = 54°$