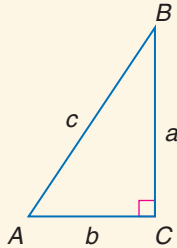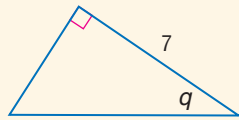**Solve $\triangle ABC$ by using the given measurements. Round measures of sides to the nearest tenth and measures of angles to the nearest degree.** (Lesson 13-1)


1. $A = 48°$, b 12
2. $a = 18$, $c = 21$

3. Draw an angle measuring $-60°$ in standard position. (Lesson 13-1)

4. Find the values of the six trigonometric functions for angle θ in the triangle at the right. (Lesson 13-1)

5. **TRUCKS** The tailgate of a moving truck is 2 feet above the ground. The incline of the ramp used for loading the truck is 15° as shown. Find the length of the ramp to the nearest tenth of a foot. (Lesson 13-1)

(Not drawn to scale)
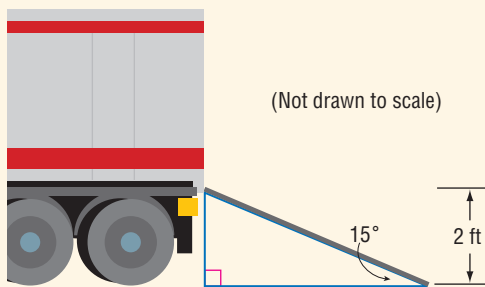
Rewrite each degree measure in radians and each radian measure in degrees. (Lesson 13-2)

6. 190°

7. 450°

8. $\dfrac{7\pi}{6}$

9. $-\dfrac{11\pi}{5}$

Find one angle with positive measure and one angle with negative measure coterminal with each angle. (Lesson 13-2)

10. $-55°$

11. $\dfrac{11\pi}{3}$

SUNDIAL For Exercises 12 and 13, use the following information. (Lesson 13-2)
A sector is a region of a circle that is bounded by a central angle θ and its intercepted arc. The area A of a sector with radius r and central angle θ is given by $A = \dfrac{1}{2}r^2\theta$, where θ is measured in radians.

12. Find the shaded area of a sundial with a central angle of $\dfrac{3\pi}{4}$ radians and a radius that measures 6 inches.

13. Find the sunny area of a sundial with a central angle of 270° with a radius measuring 10 inches.

14. Find the exact value of the six trigonometric functions of θ if the terminal side of θ in standard position contains the point $(-2, 3)$. (Lesson 13-3)

15. Find the exact value of csc $\dfrac{5\pi}{3}$. (Lesson 13-3)

16. **NAVIGATION** Airplanes and ships measure distance in nautical miles. The formula 1 nautical mile = $6077 - 31 \cos 2\theta$ feet, where θ is the latitude in degrees, can be used to find the approximate length of a nautical mile at a certain latitude. Find the length of a nautical mile where the latitude is 120°. (Lesson 13-3)

17. **MULTIPLE CHOICE** Suppose θ is an angle in standard position with sin $\theta > 0$. In which quadrant(s) does the terminal side of θ lie? (Lesson 13-3)

A I

B II

C III

D I and II