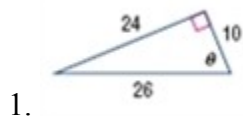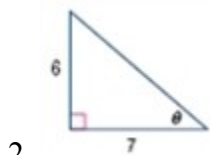# Mid-Chapter Quiz: Lessons 4-1 through 4-4

Find the exact values of the six trigonometric functions of θ.

1.

ANSWER:

$\sin\theta = \dfrac{12}{13}$, $\cos\theta = \dfrac{5}{13}$, $\tan\theta = \dfrac{12}{5}$, $\csc\theta = \dfrac{13}{12}$, $\sec\theta = \dfrac{13}{5}$, $\cot\theta = \dfrac{5}{12}$
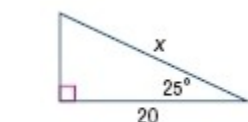
2.

ANSWER:

$\sin\theta = \dfrac{6\sqrt{85}}{85}$, $\cos\theta = \dfrac{7\sqrt{85}}{85}$, $\tan\theta = \dfrac{6}{7}$, $\csc\theta = \dfrac{\sqrt{85}}{6}$, $\sec\theta = \dfrac{\sqrt{85}}{7}$, $\cot\theta = \dfrac{7}{6}$

Find the value of x. Round to the nearest tenth if necessary.

3.

ANSWER:
4.4

4.

ANSWER:
22.1

5. **SHADOWS** A pine tree casts a shadow that is 7.9 feet long when the Sun is 80° above the horizon.
   a. Find the height of the tree.
   b. Later that same day, a person 6 feet tall casts a shadow 6.7 feet long. At what angle is the Sun above the horizon?
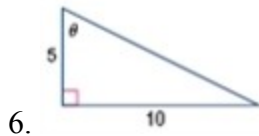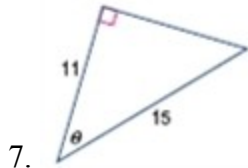
ANSWER:

a. about 45 ft
b. about 42°

Mid-Chapter Quiz: Lessons 4-1 through 4-4

Find the measure of angle θ. Round to the nearest degree if necessary.

6.

ANSWER:

63°

7.

ANSWER:

43°

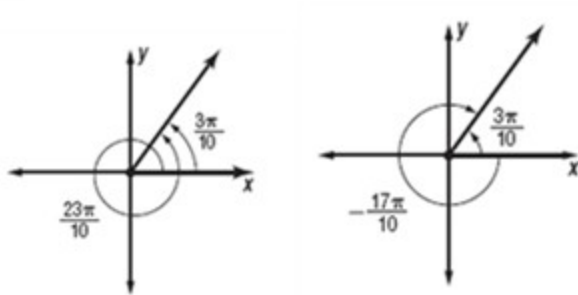**No Expression.**

8. Write $\dfrac{2\eth}{9}$ in degrees.

ANSWER:

40°

Identify all angles that are coterminal with the given angle. Then find and draw one positive and one negative angle coterminal with the given angle.

9. $\dfrac{3\eth}{10}$

ANSWER:

$\dfrac{3\eth}{10} + 2n\pi$; Sample answer: $\dfrac{23\pi}{10}, -\dfrac{17\pi}{10}$
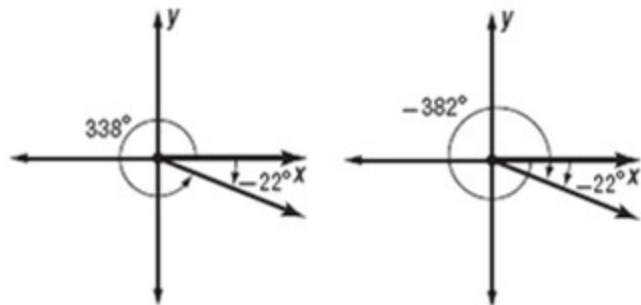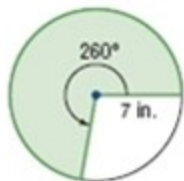
Mid-Chapter Quiz: Lessons 4-1 through 4-4

10. $-22°$

ANSWER:

$-22° + 360n°$; Sample answer: $338°$, $-382°$

11. **MULTIPLE CHOICE** Find the approximate area of the shaded region.

A 12.2 in^2

B 42.8 in^2

C 85.5 in^2

D 111.2 in^2

ANSWER:

D

12. **TRAVEL** A car is traveling at a speed of 55 miles per hour on tires that measure 2.6 feet in diameter. Find the approximate angular speed of the tires in radians per minute.
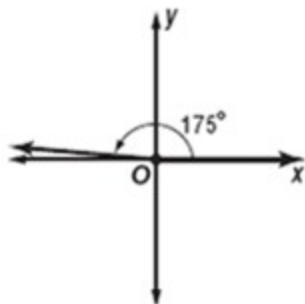
ANSWER:

3723 rad/min

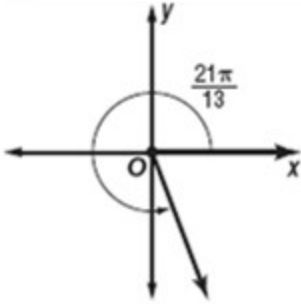**Sketch each angle. Then find its reference angle.**

13. $175°$

ANSWER:

$5°$

Mid-Chapter Quiz: Lessons 4-1 through 4-4

14. $\dfrac{21\pi}{13}$

   ANSWER:

   $\dfrac{5\pi}{13}$

Find the exact value of each expression. If undefined, write *undefined*.

15. $\cos 315^\circ$

   ANSWER:

   $\dfrac{\sqrt{2}}{2}$

16. $\sec \dfrac{3\pi}{2}$

   ANSWER:
   undefined

17. $\sin \dfrac{5\pi}{3}$

   ANSWER:

   $-\dfrac{\sqrt{3}}{2}$

18. $\tan \dfrac{5\pi}{6}$

   ANSWER:

   $-\dfrac{\sqrt{3}}{3}$

Mid-Chapter Quiz: Lessons 4-1 through 4-4

Find the exact values of the five remaining trigonometric functions of θ.

19. $\cos\theta = -\dfrac{2}{5}$, where $\sin\theta < 0$ and $\tan\theta > 0$

ANSWER:

$\sin\theta = -\dfrac{\sqrt{21}}{5}, \tan\theta = \dfrac{\sqrt{21}}{2}, \csc\theta = -\dfrac{5\sqrt{21}}{21}, \sec\theta = -\dfrac{5}{2}, \cot\theta = \dfrac{2\sqrt{21}}{21}$

20. $\cot\theta = \dfrac{4}{3}$, where $\cos\theta > 0$ and $\sin\theta > 0$

ANSWER:

$\sin\theta = \dfrac{3}{5}, \cos\theta = \dfrac{4}{5}, \csc\theta = \dfrac{5}{3}, \sec\theta = \dfrac{5}{4}, \tan\theta = \dfrac{3}{4}$