Chapter 4 Practice Test

Date_____ Period____ Score_____

Find the reference angle.

1) $\frac{59\pi}{18}$

2) $-\frac{8\pi}{3}$

3) 365°

4) 155°

Convert each radian measure into degrees.

5) $\frac{2\pi}{3}$

6) $\frac{5\pi}{4}$

Convert each degree measure into radians.

7) -330°

8) 180°

Find the exact value of each trigonometric function.

9) $\tan\frac{\pi}{6}$

10) $\sin -2\pi$

11) $\tan -\frac{8\pi}{3}$

12) $\tan\frac{7\pi}{6}$

13) $\sec\frac{19\pi}{6}$

14) $\csc -\frac{7\pi}{4}$

Find the exact values of the five trigonometric ratios not given.

15) $\sin\theta = -\frac{3}{5}$ and $\cos\theta > 0$

16) $\sec\theta = -\sqrt{2}$ and $\sin\theta > 0$

Use the given point on the terminal side of angle θ to find the value of the trigonometric function indicated.

17) sec θ; $\left(\sqrt{15}, 7\right)$

18) csc θ; $\left(-2\sqrt{3}, -2\right)$

Find the value of the trig function indicated.

19) Find csc θ if sec $\theta = \dfrac{11\sqrt{21}}{21}$

20) Find sin θ if cos $\theta = \dfrac{3}{5}$

In each triangle ABC, angle C is a right angle. Find the value of the trig function indicated.

21) Find sec A if $a = 24,\ c = 25$

22) Find csc A if $a = 15,\ b = 20$

In each problem, angle C is a right angle. Find the angle indicated to the nearest tenth.

23) Find $m\angle B$ if $b = 4$ yd, $c = 14$ yd

24) Find $m\angle A$ if $b = 15$ in, $a = 7$ in

In each problem, angle C is a right angle. Find the side indicated to the nearest tenth.

25) Find c if $a = 3$ in, $m\angle A = 70°$

26) Find a if $m\angle B = 64°,\ b = 7$ m

Find the exact value of each expression.

27) $\cos^{-1} 0$

28) $\tan^{-1} -1$

29) $\tan^{-1}\left(\cot\dfrac{\pi}{2}\right)$

30) $\tan^{-1}\left(\cot\dfrac{2\pi}{3}\right)$

Write each trigonometric expression as an algebraic expression.

31) cot $\cos^{-1} x$

32) cot $\tan^{-1} x$

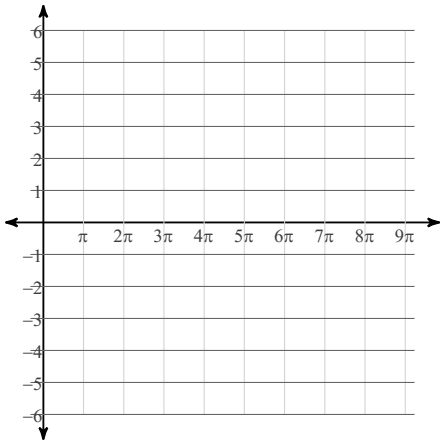
Use identities to find the value of each expression.

33) If $\cos\left(\frac{\pi}{2} - \theta\right) = 0.26$, find $\sin(-\theta)$.

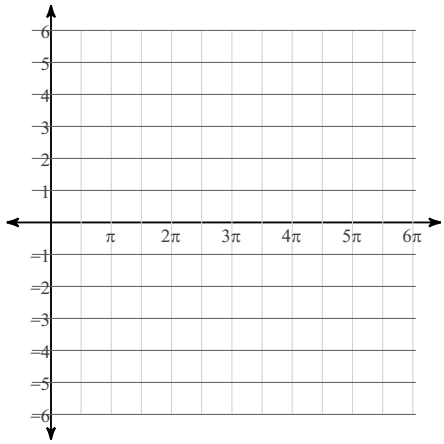
34) If $\cot(-\theta) = -0.23$, find $\tan\left(\theta - \frac{\pi}{2}\right)$.

Graph each function using radians.

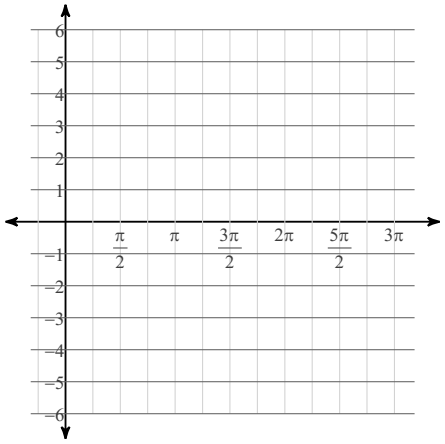
35) $y = \cos\frac{\theta}{3} + 1$



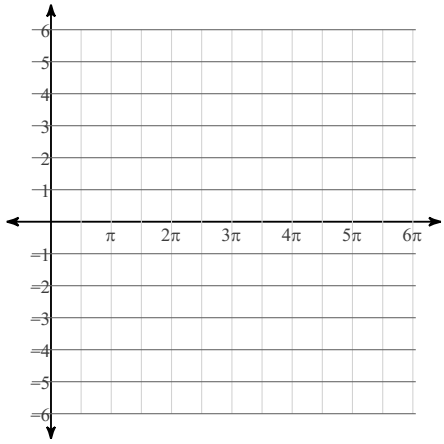
36) $y = 4\sin\frac{\theta}{2}$



37) $y = 3\tan\frac{\theta}{2}$



38) $y = 2\sec\frac{\theta}{2}$



39) An observer in a ship notices the top of the lighthouse to be an angle of elevation of 30 degrees. If the lighthouse is 425 feet above sea level, how far is the ship to the lighthouse?

40) A passenger in an airplane at an altitude of 15 miles sees two towns directly to the east of the plane. The angles of depression to the towns are 31 and 42 degrees. How far apart are the towns?

Answers to Chapter 4 Practice Test (ID: 1)

1) $\frac{5\pi}{18}$

2) $\frac{\pi}{3}$

3) 5°

4) 25°

5) 120°

6) 225°

7) $-\frac{11\pi}{6}$

8) π

9) $\frac{\sqrt{3}}{3}$

10) 0

11) $\sqrt{3}$

12) $\frac{\sqrt{3}}{3}$

13) $-\frac{2\sqrt{3}}{3}$

14) $\sqrt{2}$

15) $\cos\theta = \frac{4}{5}$, $\tan\theta = -\frac{3}{4}$
$\csc\theta = -\frac{5}{3}$, $\sec\theta = \frac{5}{4}$, $\cot\theta = -\frac{4}{3}$

16) $\sin\theta = \frac{\sqrt{2}}{2}$, $\cos\theta = -\frac{\sqrt{2}}{2}$, $\tan\theta = -1$
$\csc\theta = \sqrt{2}$, $\cot\theta = -1$

17) $\frac{8\sqrt{15}}{15}$

18) –2

19) $\frac{11}{10}$

20) $\frac{4}{5}$

21) $\frac{25}{7}$

22) $\frac{5}{3}$

23) 16.6°

24) 25°

25) 3.2 in

26) 3.4 m

27) $\frac{\pi}{2}$

28) $-\frac{\pi}{4}$

29) 0

30) $-\frac{\pi}{6}$

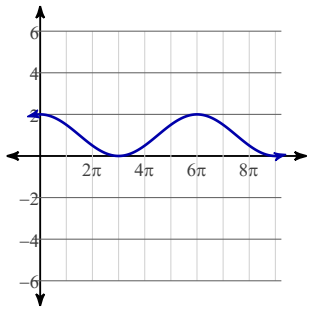
31) $\frac{x}{\sqrt{1-x^2}}$

32) $\frac{1}{x}$

33) –0.26

34) –0.23

35)



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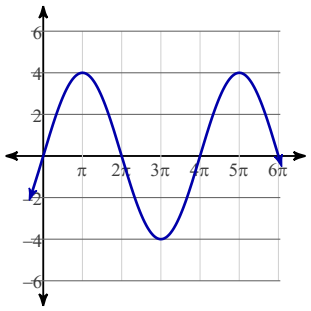

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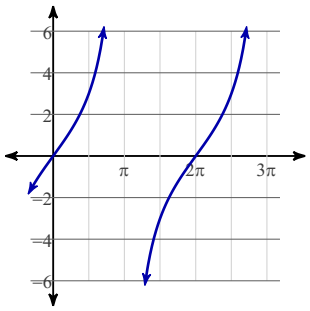

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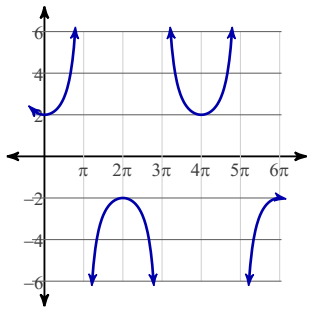

39) 425/(tan30°)

40) 15/(tan31°) - 15/(tan42°)