

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

Convert the angle in degrees to radians. Express answer as a multiple of π .

- 1) 54° 1) _____
A) $\frac{4\pi}{11}$ radians B) $\frac{3\pi}{10}$ radians C) $\frac{1}{5}\pi$ radians D) $\frac{2\pi}{9}$ radians

Convert the angle in radians to degrees.

- 2) $\frac{\pi}{3}$ 2) _____
A) $60\pi^\circ$ B) $\left(\frac{\pi}{3}\right)^\circ$ C) 60° D) 1°

Find a positive angle less than 360° that is coterminal with the given angle.

- 3) -234° 3) _____
A) -54° B) 234° C) 126° D) 306°

Find the length of the arc on a circle of radius r intercepted by a central angle θ . Round answer to two decimal places.

- 4) $r = 9$ feet, $\theta = 75^\circ$ 4) _____
A) 11.78 feet B) 10.6 feet C) 12.96 feet D) 9.42 feet

The point P on the unit circle that corresponds to a real number t is given. Find the values of the indicated trigonometric function at t .

- 5) $\left(\frac{3}{8}, \frac{\sqrt{55}}{8}\right)$ Find $\sin t$. 5) _____
A) $\frac{3\sqrt{55}}{55}$ B) $\frac{3}{8}$ C) $\frac{\sqrt{55}}{8}$ D) $\frac{\sqrt{55}}{3}$

Solve the problem.

- 6) What is the domain of the cosine function? 6) _____
A) all real numbers from -1 to 1 , inclusive
B) all real numbers, except integral multiples of π (180°)
C) all real numbers, except odd multiples of $\frac{\pi}{2}$ (90°)
D) all real numbers

Find the exact value.

- 7) $\sec \frac{\pi}{4}$ 7) _____
A) $\sqrt{2}$ B) $\sqrt{3}$ C) $\frac{2\sqrt{3}}{3}$ D) $\frac{\sqrt{2}}{2}$

Find the exact value of the expression if $\theta = 45^\circ$. Do not use a calculator.

- 8) $7 \sin \theta$ 8) _____
A) $\frac{\sqrt{2}}{2}$ B) $\frac{7\sqrt{2}}{2}$ C) $-\frac{7\sqrt{2}}{2}$ D) $-\frac{\sqrt{2}}{2}$

Sin t and cos t are given. Use identities to find the indicated value. Where necessary, rationalize denominators.

9) $\sin t = -\frac{2}{7}$, $\cos t = \frac{3\sqrt{5}}{7}$. Find $\tan t$.

9) _____

A) $-\frac{2\sqrt{5}}{15}$

B) $-\frac{7}{2}$

C) $\frac{7\sqrt{5}}{15}$

D) $-\frac{2\sqrt{5}}{2}$

10) $\sin t = \frac{\sqrt{11}}{6}$, $\cos t = \frac{5}{6}$. Find $\sec t$.

10) _____

A) $\frac{5\sqrt{11}}{11}$

B) $\frac{\sqrt{11}}{5}$

C) $\frac{6\sqrt{11}}{11}$

D) $\frac{6}{5}$

$0 \leq t < \frac{\pi}{2}$ and $\sin t$ is given. Use the Pythagorean identity $\sin^2 t + \cos^2 t = 1$ to find $\cos t$.

11) $\sin t = \frac{1}{4}$

11) _____

A) 4

B) $\frac{\sqrt{15}}{4}$

C) $\frac{4\sqrt{15}}{15}$

D) $\frac{\sqrt{15}}{15}$

Use an identity to find the value of the expression. Do not use a calculator.

12) $\sin 1.7 \csc 1.7$

12) _____

A) 1

B) -1

C) 1.7

D) -1.7

Find the exact value of the trigonometric function. Do not use a calculator.

13) $\tan \frac{5\pi}{4}$

13) _____

A) -1

B) $-\frac{\sqrt{2}}{2}$

C) $-\sqrt{2}$

D) 1

Use periodic properties of the trigonometric functions to find the exact value of the expression.

14) $\sin \frac{11\pi}{3}$

14) _____

A) -1

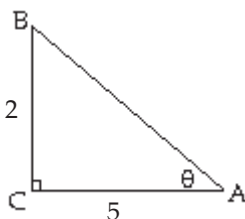
B) $-\frac{1}{2}$

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

D) $\frac{\sqrt{3}}{2}$

Two sides of a right triangle ABC (C is the right angle) are given. Find the indicated trigonometric function of the given angle. Give an exact answer with a rational denominator.

15) _____



Find $\sin \theta$.

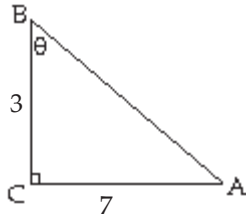
A) $\sin \theta = \frac{5\sqrt{29}}{29}$

B) $\sin \theta = \frac{2\sqrt{29}}{29}$

C) $\sin \theta = \frac{\sqrt{29}}{5}$

D) $\sin \theta = \frac{\sqrt{29}}{2}$

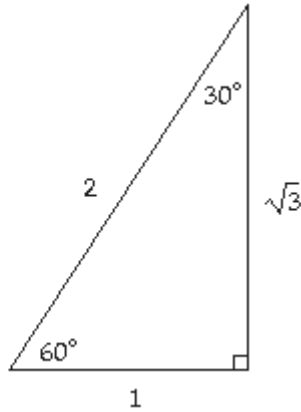
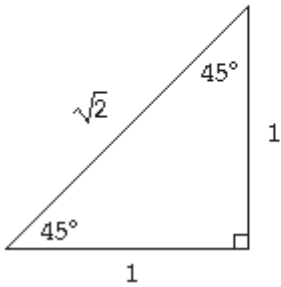
16) _____



Find $\sec \theta$.

- A) $\sec \theta = \frac{3\sqrt{58}}{58}$ B) $\sec \theta = \frac{\sqrt{58}}{3}$ C) $\sec \theta = \frac{3\sqrt{58}}{7}$ D) $\sec \theta = \frac{7\sqrt{58}}{58}$

Use the given triangles to evaluate the expression. Rationalize all denominators.



17) $\sec 60^\circ$ _____

- A) $\sqrt{2}$ B) 2 C) $\frac{\sqrt{3}}{2}$ D) $\frac{2\sqrt{3}}{3}$

18) $\tan \frac{\pi}{6} - \sin \frac{\pi}{3}$ _____

- A) $-\frac{\sqrt{6}}{2}$ B) $\sqrt{3}$ C) $\frac{2\sqrt{3} - 3\sqrt{2}}{6}$ D) $-\frac{\sqrt{3}}{6}$

Solve the problem.

19) A building 160 feet tall casts a 100 foot long shadow. If a person looks down from the top of the building, what is the measure of the angle between the end of the shadow and the vertical side of the building (to the nearest degree)? (Assume the person's eyes are level with the top of the building.) _____

- A) 51° B) 39° C) 58° D) 32°

A point on the terminal side of angle θ is given. Find the exact value of the indicated trigonometric function of θ .

20) (9, 12) Find $\cos \theta$. _____

- A) $\frac{3}{4}$ B) $\frac{4}{3}$ C) $\frac{3}{5}$ D) $\frac{4}{5}$

Evaluate the trigonometric function at the quadrantal angle, or state that the expression is undefined.

21) $\cos \pi$ _____

- A) 1 B) 0 C) -1 D) undefined

22) $\sec \frac{\pi}{2}$

22) _____

A) undefined

B) -1

C) 0

D) 1

Let θ be an angle in standard position. Name the quadrant in which the angle θ lies.

23) $\tan \theta < 0, \quad \sin \theta < 0$

23) _____

A) quadrant III

B) quadrant IV

C) quadrant II

D) quadrant I

Use reference angles to find the exact value of the expression. Do not use a calculator.

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

24) _____

A) $-\sqrt{3}$ B) $\frac{\sqrt{3}}{3}$ C) $\frac{\sqrt{3}}{2}$ D) $\sqrt{3}$

Determine the amplitude or period as requested.

25) Amplitude of $y = -3 \sin x$

25) _____

A) -3π B) 2π C) $\frac{\pi}{3}$

D) 3

26) Period of $y = \sin 3x$

26) _____

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

B) 3

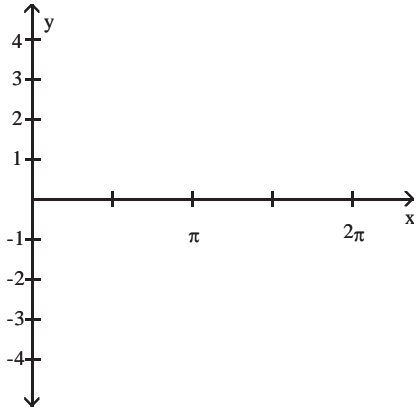
C) 1

D) 2π

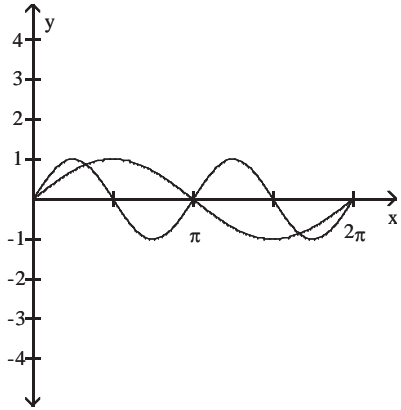
Graph the function and $y = \sin x$ in the same rectangular system for $0 \leq x \leq 2\pi$.

27) $y = 2 \sin x$

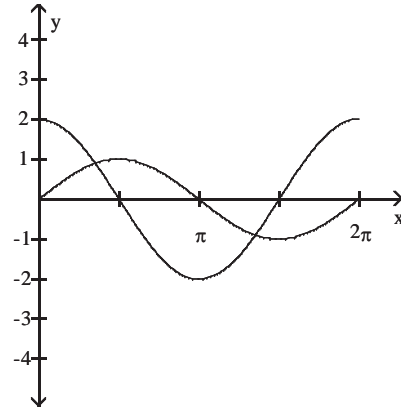
27) _____



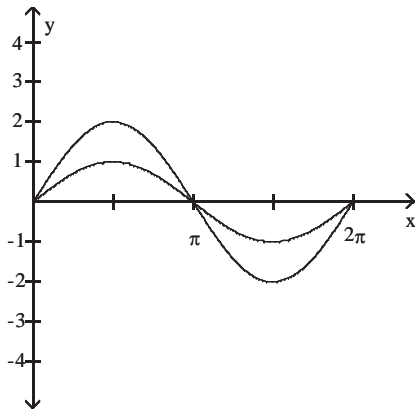
A)



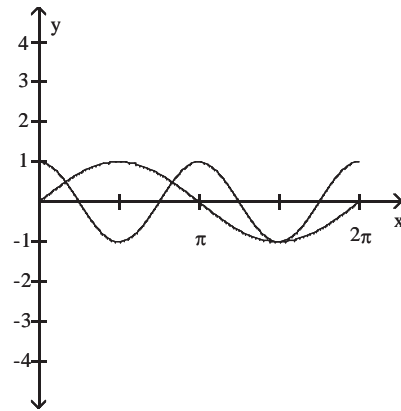
B)



C)



D)



Determine the amplitude or period as requested.

28) Period of $y = -5 \cos x$

28) _____

A) 2π

B) π

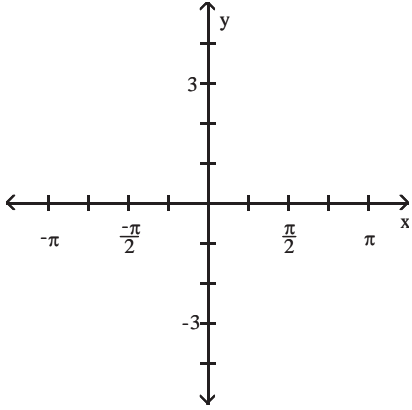
C) $\frac{\pi}{5}$

D) 5

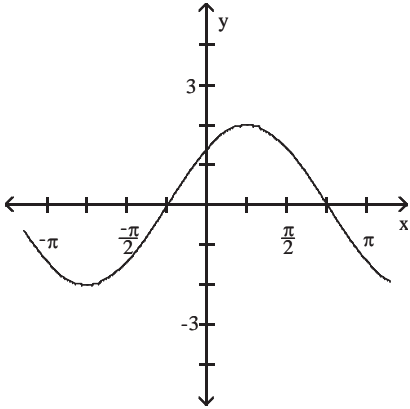
Graph the function.

29) $y = 2 \cos(x - \frac{\pi}{4})$

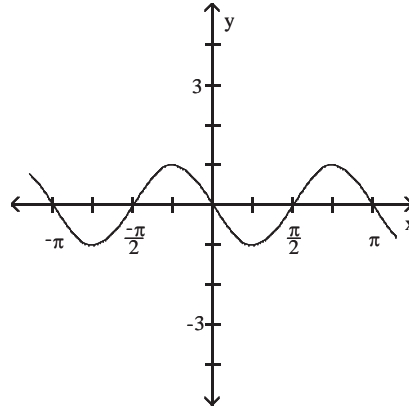
29) _____



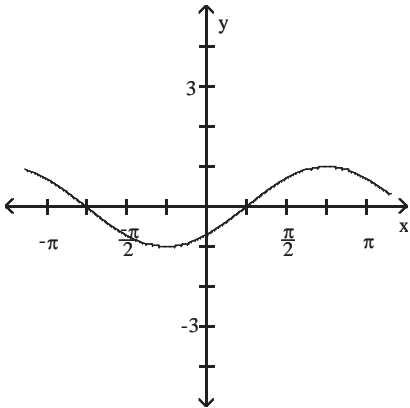
A)



B)



C)



D)

