

Name: Last _____, First _____

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

Convert the angle to a decimal in degrees. Round the answer to two decimal places.

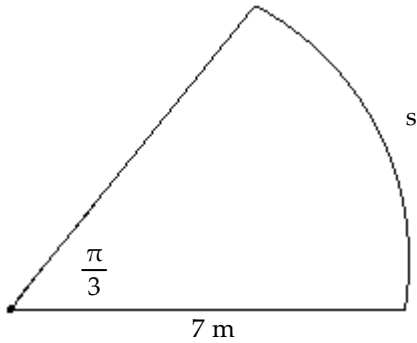
- 1) $172^{\circ}15'53''$ 1) _____
 A) 172.26° B) 172.22° C) 172.27° D) 172.32°

Convert the angle to D° M' S" form. Round the answer to the nearest second.

- 2) 337.58° 2) _____
 A) $337^{\circ}34'58''$ B) $337^{\circ}34'48''$ C) $337^{\circ}35'47''$ D) $337^{\circ}47'58''$

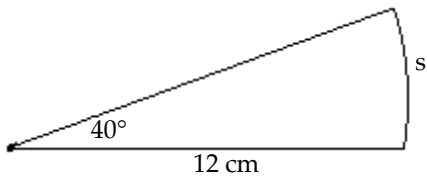
Find the length s. Round the answer to three decimal places.

- 3) 3) _____



- A) 6.685 m B) 14.66 m C) 7.33 m D) 1.346 m

- 4) 4) _____



- A) 9.216 cm B) 6.702 cm C) 8.378 cm D) 7.54 cm

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Solve the problem.

- 5) Salt Lake City, Utah, is due north of Flagstaff, Arizona. Find the distance between Salt Lake City ($40^{\circ}45'$ north latitude) and Flagstaff ($35^{\circ}16'$ north latitude). Assume that the radius of the Earth is 3960 miles. Round to nearest whole mile. 5) _____

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

- 6) A pendulum swings through an angle of 30° each second. If the pendulum is 55 inches long, how far does its tip move each second? If necessary, round the answer to two decimal places. 6) _____
- A) 28.8 in. B) 30.09 in. C) 31.23 in. D) 26.95 in.

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

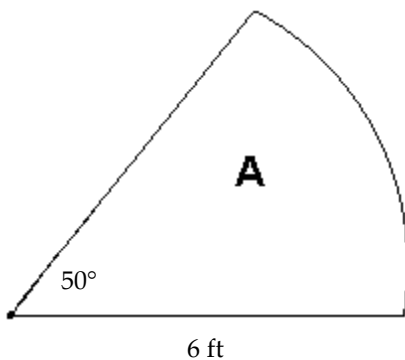
- 7) 87° 7) _____
- A) $\frac{29\pi}{120}$ B) $\frac{29\pi}{90}$ C) $\frac{29\pi}{60}$ D) $\frac{29\pi}{30}$

Convert the angle in radians to degrees.

- 8) $\frac{11\pi}{12}$ 8) _____
- A) 160° B) 210° C) 150° D) 165°

Find the area A. Round the answer to three decimal places.

- 9) 9) _____



- A) 15.708 ft^2 B) 5 ft^2 C) 31.416 ft^2 D) 2.618 ft^2

Solve the problem.

- 10) As part of an experiment to test different liquid fertilizers, a sprinkler has to be set to cover an area of 120 square yards in the shape of a sector of a circle of radius 50 yards. Through what angle should the sprinkler be set to rotate? If necessary, round the answer to two decimal places. 10) _____
- A) 17.28° B) 5.5° C) 2.75° D) 4.13°
- 11) The blade of a windshield wiper sweeps out an angle of 135° in one cycle. The base of the blade is 12 inches from the pivot point and the tip is 32 inches from the pivot point. What area does the wiper cover in one cycle? (Round to the nearest 0.1 square inch.) 11) _____
- A) 1036.7 in^2 B) 948.3 in^2 C) 1105.3 in^2 D) 1041.8 in^2
- 12) To approximate the speed of a river, a circular paddle wheel with radius 0.55 feet is lowered into the water. If the current causes the wheel to rotate at a speed of 12 revolutions per minute, what is the speed of the current? If necessary, round to two decimal places. 12) _____
- A) 41.47 mph B) 0.24 mph C) 0.08 mph D) 0.47 mph

In the problem, t is a real number and $P = (x, y)$ is the point on the unit circle that corresponds to t . Find the exact value of the indicated trigonometric function of t .

13) $(\frac{3}{4}, -\frac{\sqrt{7}}{4})$ Find $\cos t$. 13) _____

- A) $\frac{3}{4}$ B) $\frac{\sqrt{7}}{4}$ C) $-\frac{\sqrt{7}}{4}$ D) $-\frac{3}{4}$

14) $(-\frac{\sqrt{11}}{6}, -\frac{5}{6})$ Find $\sin t$. 14) _____

- A) $\frac{6}{5}$ B) $-\frac{5}{6}$ C) $-\frac{6\sqrt{11}}{11}$ D) $-\frac{\sqrt{11}}{6}$

15) $(\frac{\sqrt{11}}{6}, \frac{5}{6})$ Find $\sec t$. 15) _____

- A) $\frac{6}{5}$ B) $\frac{6\sqrt{11}}{11}$ C) $\frac{5\sqrt{11}}{11}$ D) $\frac{\sqrt{11}}{5}$

16) $(-\frac{\sqrt{21}}{5}, \frac{2}{5})$ Find $\cot t$. 16) _____

- A) $\frac{2}{5}$ B) $-\frac{5}{2}$ C) $\frac{\sqrt{21}}{5}$ D) $-\frac{\sqrt{21}}{2}$

Find the exact value of the expression. Do not use a calculator.

17) $\cos \frac{\pi}{3} + \tan \frac{5\pi}{3}$ 17) _____

- A) $\frac{\sqrt{3}+1}{2}$ B) $\frac{1-2\sqrt{3}}{2}$ C) $\frac{2\sqrt{3}+3}{6}$ D) $\frac{\sqrt{3}+3}{3}$

Solve the problem.

18) The force acting on a pendulum to bring it to its perpendicular resting point is called the restoring force. The restoring force F , in Newtons, acting on a string pendulum is given by the formula 18) _____

$$F = mg \sin \theta$$

where m is the mass in kilograms of the pendulum's bob, $g \approx 9.8$ meters per second per second is the acceleration due to gravity, and θ is angle at which the pendulum is displaced from the perpendicular. What is the value of the restoring force when $m = 0.6$ kilogram and $\theta = 45^\circ$? If necessary, round the answer to the nearest tenth of a Newton.

- A) 4 N B) 4.3 N C) 4.2 N D) 5 N

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

19) $(-3, -4)$ Find $\sin \theta$. 19) _____

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

20) $(-2, -1)$ Find $\csc \theta$. 20) _____

- A) -5 B) $-\sqrt{5}$ C) -2 D) $\sqrt{5}$

Solve the problem.

- 21) If $f(\theta) = \cos \theta$ and $f(a) = \frac{1}{6}$, find the exact value of $f(a) + f(a + 2\pi) + f(a + 4\pi)$. 21) _____
- A) $\frac{1}{6}$ B) $\frac{5}{2}$ C) $\frac{1}{2}$ D) $\frac{1}{2} + 6\pi$

Use a calculator to find the approximate value of the expression rounded to two decimal places.

- 22) $\cot \frac{\pi}{10}$ 22) _____
- A) 182.38 B) 182.43 C) 3.08 D) 3.03
- 23) $\tan 31^\circ$ 23) _____
- A) -0.44 B) -0.52 C) 0.52 D) 0.60

Find the exact value of the indicated trigonometric function of θ .

- 24) $\tan \theta = -\frac{10}{7}$, θ in quadrant II Find $\cos \theta$. 24) _____
- A) $-\frac{\sqrt{149}}{7}$ B) $-\frac{7\sqrt{149}}{149}$ C) $\frac{\sqrt{149}}{10}$ D) $\frac{7\sqrt{149}}{149}$
- 25) $\cos \theta = \frac{7}{25}$, $\frac{3\pi}{2} < \theta < 2\pi$ Find $\cot \theta$. 25) _____
- A) $-\frac{7}{24}$ B) $-\frac{24}{7}$ C) $\frac{-7\sqrt{2}}{6}$ D) $\frac{25}{7}$

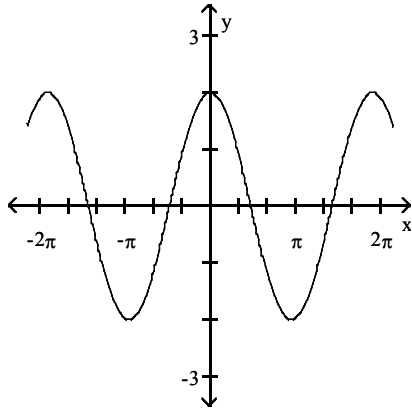
Match the given function to its graph.

26) 1) $y = 2 \sin\left(\frac{\pi}{3}x\right)$ 2) $y = 2 \sin\left(\frac{1}{3}x\right)$

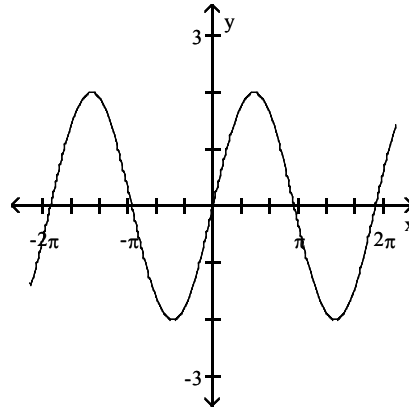
26) _____

3) $y = 2 \cos\left(\frac{\pi}{3}x\right)$ 4) $y = 2 \cos\left(\frac{1}{3}x\right)$

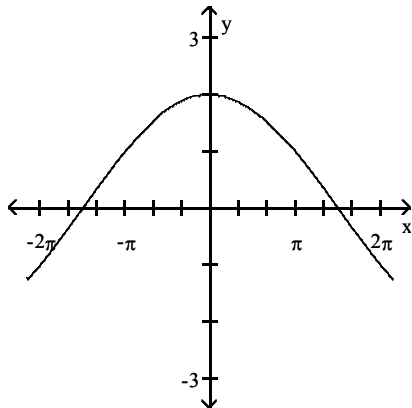
A)



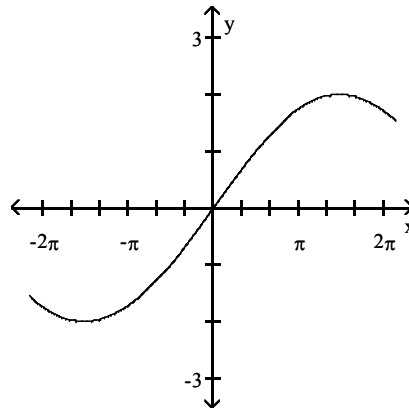
B)



C)



D)



A) 1C, 2A, 3D, 4B

B) 1B, 2D, 3A, 4C

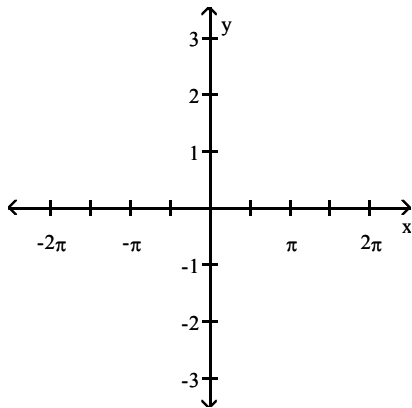
C) 1A, 2C, 3D, 4B

D) 1A, 2C, 3B, 4D

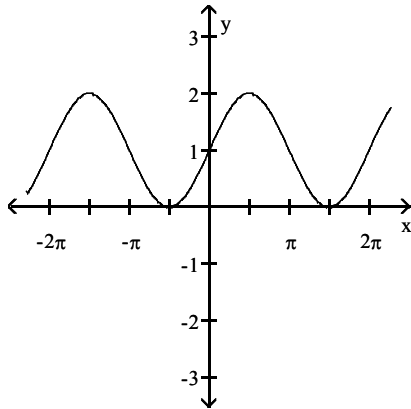
Graph the sinusoidal function using key points.

27) $y = \sin x - 1$

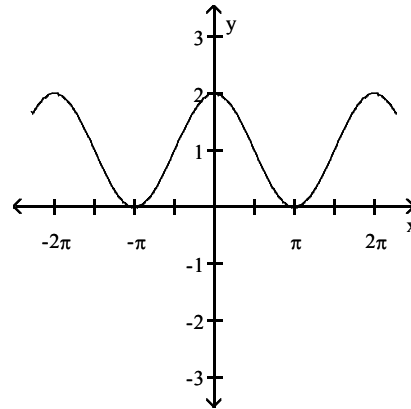
27) _____



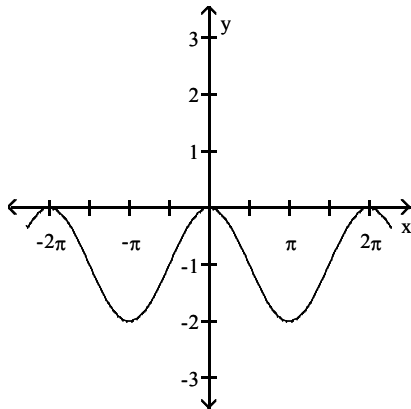
A)



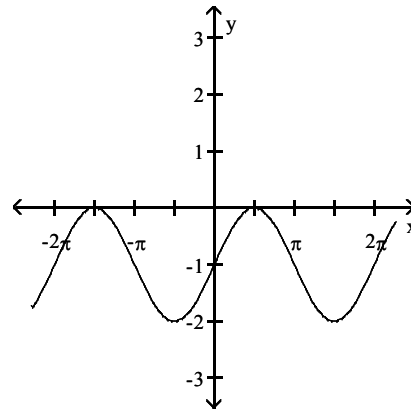
B)



C)



D)



Without graphing the function, determine its amplitude or period as requested.

28) $y = \frac{3}{4} \cos\left(-\frac{4\pi}{5}x\right)$ Find the period.

28) _____

A) $\frac{5}{2}$

B) $\frac{8\pi}{5}$

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

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

29) $y = \frac{9}{4} \cos\left(-\frac{4\pi}{7}x\right)$ Find the amplitude.

29) _____

A) $\frac{7}{2}$

B) $\frac{4\pi}{7}$

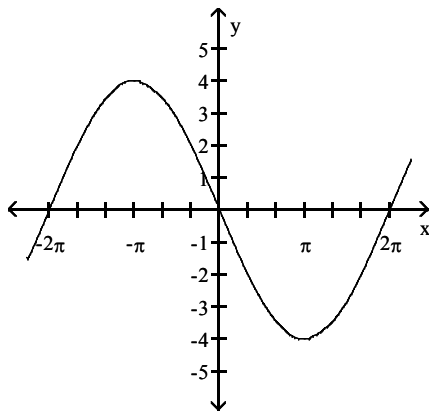
C) $\frac{9}{4}$

D) $\frac{4\pi}{9}$

Find an equation for the graph.

30)

30) _____



A) $y = -4 \sin\left(\frac{1}{2}x\right)$

B) $y = -4 \cos(2x)$

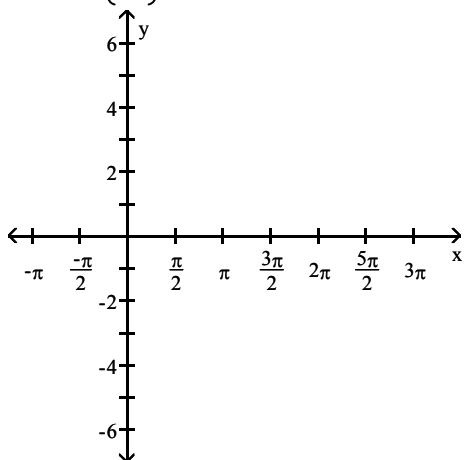
C) $y = -4 \cos\left(\frac{1}{2}x\right)$

D) $y = -4 \sin(2x)$

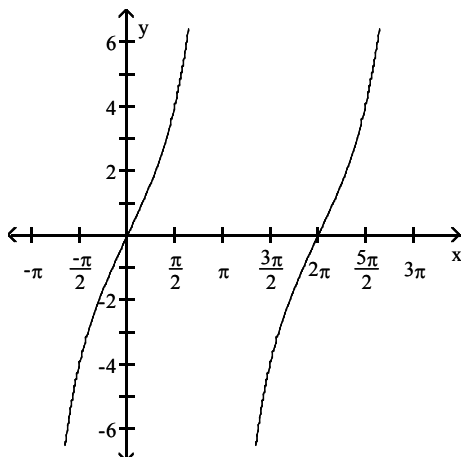
Graph the function.

31) $y = 4 \tan\left(\frac{1}{2}x\right)$

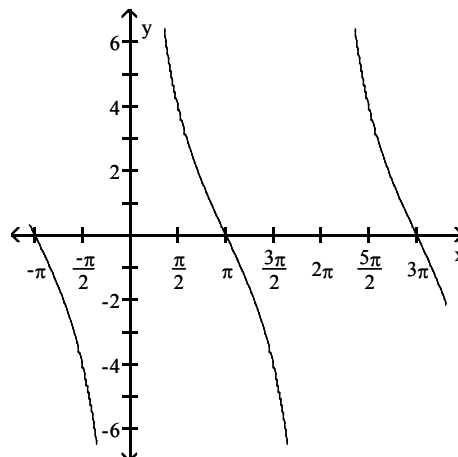
31) _____



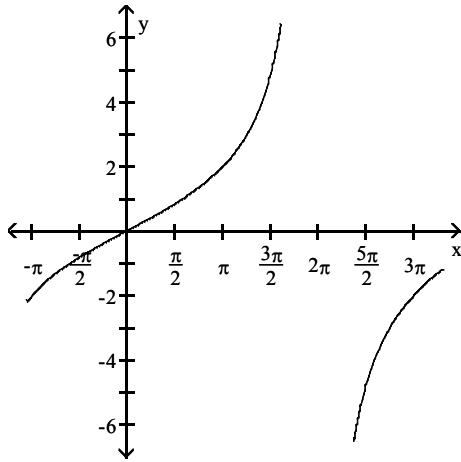
A)



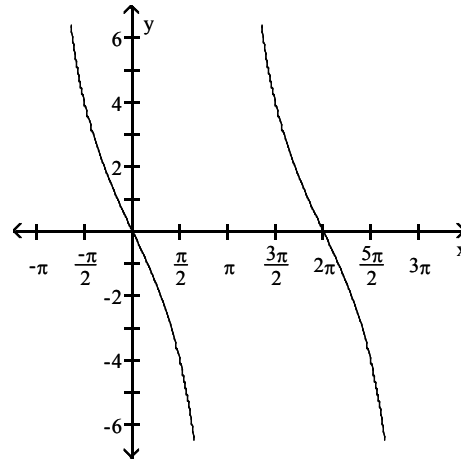
B)



C)



D)



Find the phase shift.

32) $y = 2 \sin(3\pi x - 2)$

A) 2 units to the right

C) $\frac{2}{3}$ units to the left

B) $\frac{2}{3\pi}$ units to the right

D) 2 units to the left

32) _____

Answer Key

Testname: MATH 1113-Q2-PRACTICE SUMMER-08

- 1) A
- 2) B
- 3) C
- 4) C
- 5) 379 mi
- 6) A
- 7) C
- 8) D
- 9) A
- 10) B
- 11) A
- 12) D
- 13) A
- 14) B
- 15) B
- 16) D
- 17) B
- 18) C
- 19) D
- 20) B
- 21) C
- 22) C
- 23) D
- 24) B
- 25) A
- 26) B
- 27) D
- 28) A
- 29) C
- 30) A
- 31) A
- 32) B