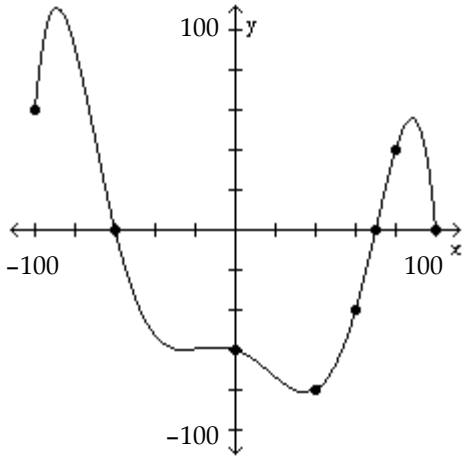
Name_____

The graph of a function f is given. Use the graph to answer the question.

1) For what numbers x is f(x) < 0? 1) _____



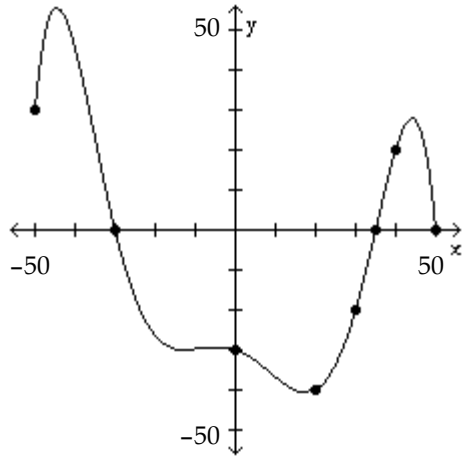
A) (–60, ∞)

B) (–∞, –60)

C) [–100, –60), (70, 100)

D) (–60, 70)

2) What are the x–intercepts? 2) _____



A) –50, –30, 35, 50

B) –30, 35

C) –30

D) –30, 35, 50

Write the equation of a sine function that has the given characteristics.

3) The graph of $y = x^2$, shifted 2 units downward 3) _____

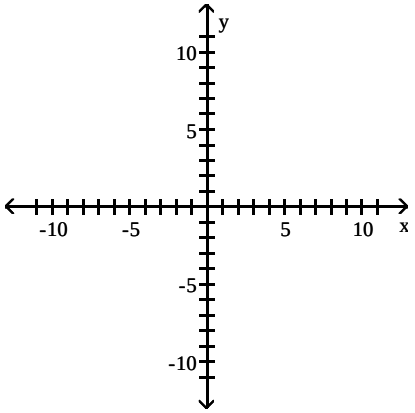
A) $y = x^2 + 2$ B) $y = \frac{x^2}{2}$ C) $y = x^2 - 2$ D) $y = 2x^2$

4) The graph of $y = |x|$, shifted 6 units to the right 4) _____

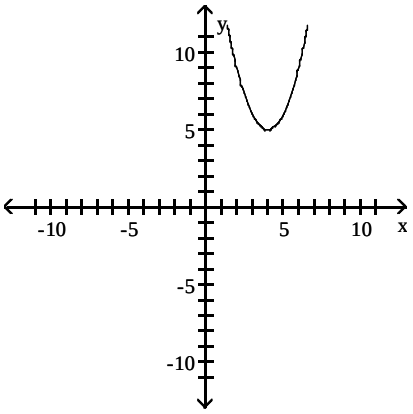
A) $y = |x| + 6$ B) $y = |x| - 6$ C) $y = |x + 6|$ D) $y = |x - 6|$

Graph the function by starting with the graph of the basic function and then using the techniques of shifting, compressing, stretching, and/or reflecting.

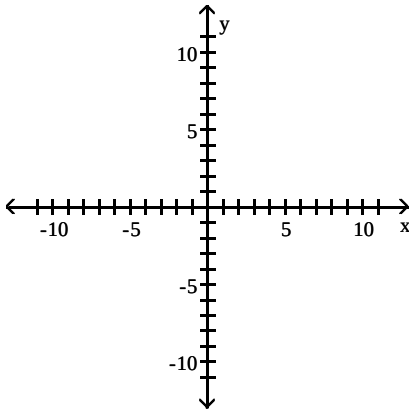
5) $f(x) = (x - 4)^2 + 5$ 5) _____



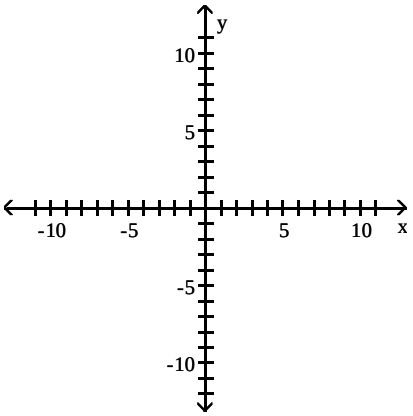
A)



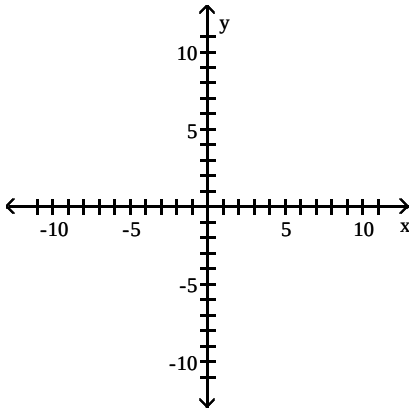
B)



C)



D)



Use a coterminal angle to find the exact value of the expression. Do not use a calculator.

6) $\sin \frac{19\pi}{3}$ 6) _____

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

7) $\cot \frac{7\pi}{3}$ 7) _____

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

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

8) $\sec \theta = \frac{9}{2}$, θ in quadrant IV Find $\tan \theta$. 8) _____

A) $-\frac{\sqrt{77}}{9}$ B) $-\sqrt{77}$ C) $-\frac{\sqrt{77}}{2}$ D) $-\frac{9}{2}$

9) $\tan \theta = -\frac{10}{7}$, θ in quadrant II Find $\cos \theta$. 9) _____

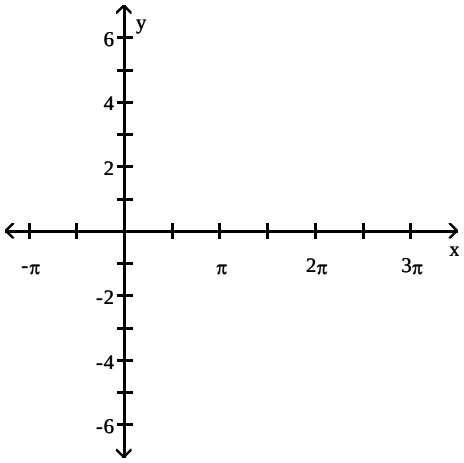
A) $\frac{\sqrt{149}}{10}$ B) $-\frac{7\sqrt{149}}{149}$ C) $-\frac{\sqrt{149}}{7}$ D) $\frac{7\sqrt{149}}{149}$

10) $\tan\theta = \frac{20}{21}$, $180° < \theta < 270°$ Find $\cos\theta$. 10) _____

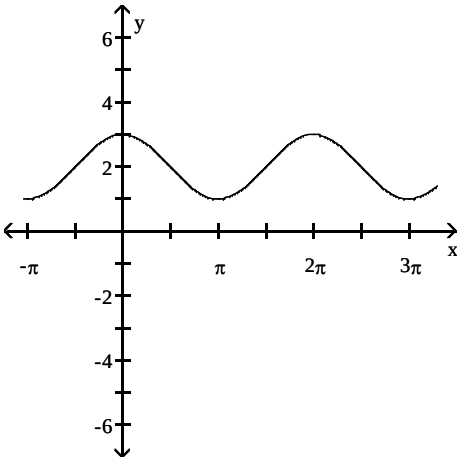
A) $-\frac{21}{29}$ B) -21 C) $\frac{20\sqrt{41}}{41}$ D) $\frac{-21\sqrt{41}}{41}$

Use transformations to graph the function.

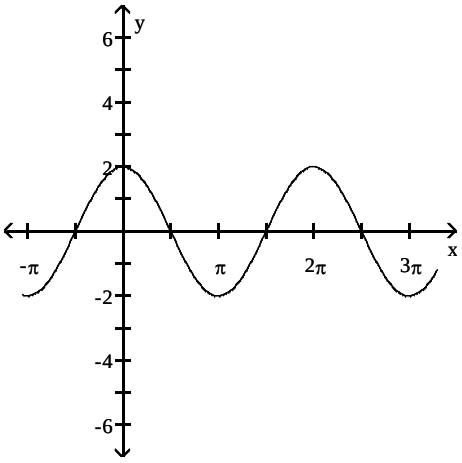
11) $y = 2 \sin x$ 11) _____



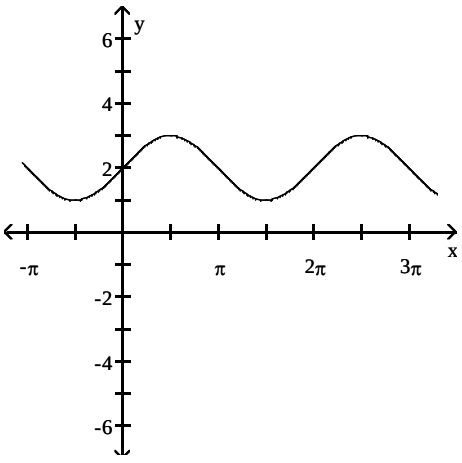
A)



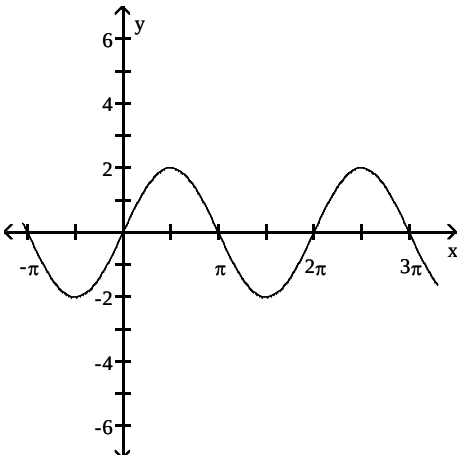
B)



C)



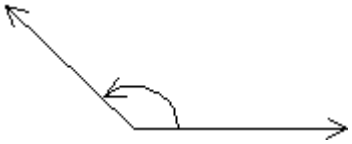
D)



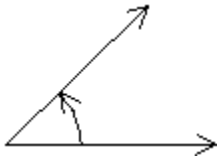
Draw the given angle in standard position. Draw an arrow representing the correct amount of rotation. Find the measure of two other angles, one positive and one negative, coterminal with the given angle.

12) 50° 12) _____

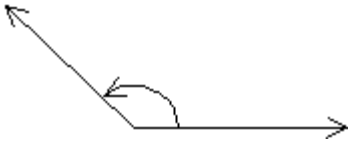
A) 410° and –310°



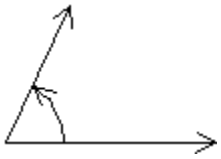
B) 410° and –310°



C) 230° and –130°

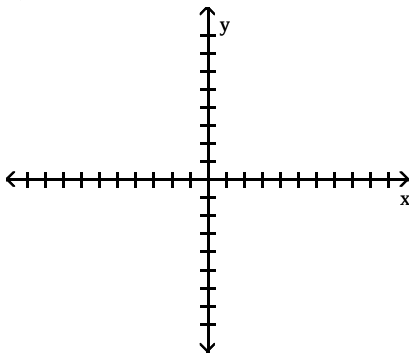


D) 230° and –130°

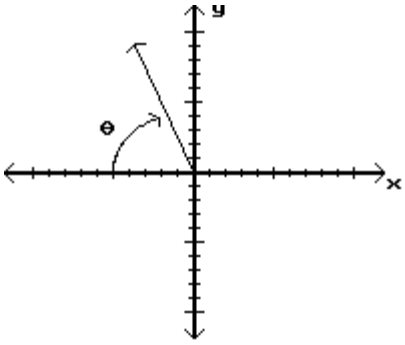


Sketch an angle θ in standard position such that θ has the smallest positive measure and the given point is on the terminal side of θ.

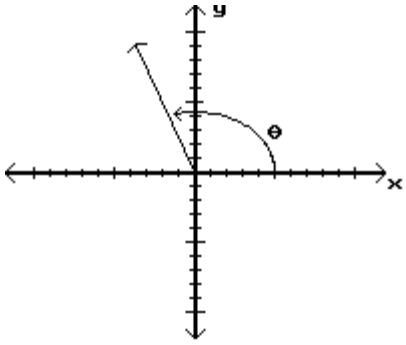
13) (–2, 5) 13) _____



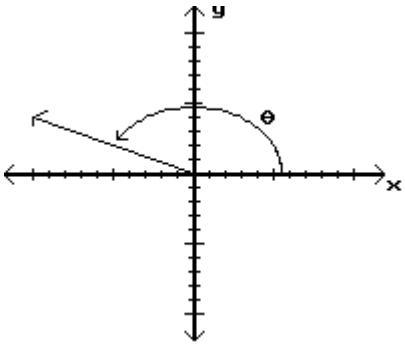
A)



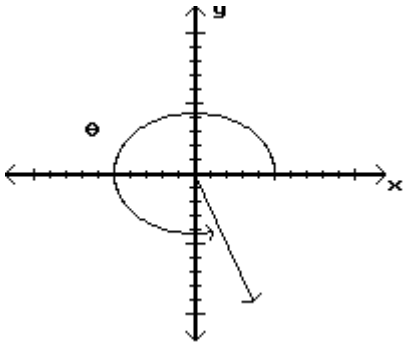
B)



C)



D)



Suppose that θ is in standard position and the given point is on the terminal side of θ. Give the exact value of the indicated trig function for θ.

14) (12, 16); Find sin θ. 14) _____

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

15) (–20, 48); Find sin θ. 15) _____

A) $-\frac{5}{13}$ B) $\frac{5}{13}$ C) $\frac{12}{13}$ D) $-\frac{12}{13}$

16) (4, 5); Find tan θ. 16) _____

A) $\frac{4}{5}$ B) $\frac{5}{6}$ C) $\frac{2}{3}$ D) $\frac{5}{4}$

Evaluate the expression.

17) sin(–180°) 17) _____

A) 0 B) Undefined C) 1 D) –1

18) cot 450° 18) _____

A) 0 B) 1 C) $\frac{\sqrt{2}}{2}$ D) Undefined

19) sec(–90°) 19) _____

A) Undefined B) $\frac{2\sqrt{3}}{3}$ C) 0 D) –1

20) cos 360° – 5 sin 90° 20) _____

A) –4 B) –5 C) 1 D) 0

21) 5 tan 180° + 9 csc 270° 21) _____

A) Undefined B) –9 C) 9 D) 0

Determine the signs of the given trigonometric functions of an angle in standard position with the given measure.

22) cos (433°) and sin (433°) 22) _____

A) negative and positive B) negative and negative

C) positive and positive D) positive and negative

23) csc (558°) and cot (558°) 23) _____

A) positive and positive B) positive and negative

C) negative and positive D) negative and negative

Identify the quadrant for the angle θ satisfying the following conditions.

24) $\tan\theta > 0$ and $\sin\theta < 0$ 24) _____

A) Quadrant IV B) Quadrant II C) Quadrant III D) Quadrant I

25) $\sin\theta > 0$ and $\cos\theta < 0$ 25) _____

A) Quadrant IV B) Quadrant III C) Quadrant II D) Quadrant I

26) $\cot\theta < 0$ and $\cos\theta > 0$ 26) _____

A) Quadrant I B) Quadrant III C) Quadrant IV D) Quadrant II

Use the fundamental identities to find the value of the trigonometric function.

27) Find $\sin\theta$, given that $\cos\theta = \frac{2}{3}$ and θ is in quadrant IV. 27) _____

A) $\frac{3\sqrt{7}}{7}$ B) $-\frac{\sqrt{5}}{3}$ C) $\frac{5}{4}$ D) $-\frac{3}{2}$

28) Find $\sec\theta$, given that $\tan\theta = \frac{3}{4}$ and θ is in quadrant I. 28) _____

A) $\frac{3\sqrt{7}}{7}$ B) $-\frac{\sqrt{7}}{9}$ C) $\frac{5}{4}$ D) $-\frac{3}{2}$

29) Find $\sin\theta$, given that $\cos\theta = \frac{2}{9}$ and $\tan\theta < 0$. 29) _____

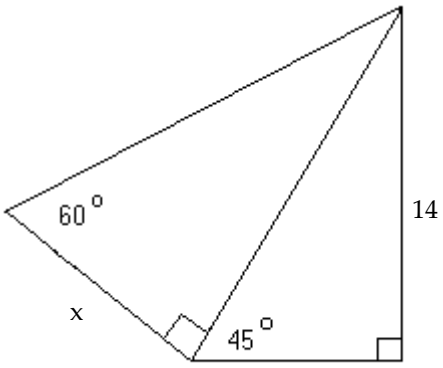
A) $-\frac{9}{2}$ B) $-\sqrt{77}$ C) $-\frac{\sqrt{77}}{2}$ D) $-\frac{\sqrt{77}}{9}$

30) Find csc θ, given that $\cot\theta = -\frac{3}{10}$ and $\cos\theta < 0$. 30) _____

A) $-\frac{3\sqrt{109}}{109}$ B) $\frac{3\sqrt{109}}{109}$ C) $-\frac{\sqrt{109}}{3}$ D) $\frac{\sqrt{109}}{10}$

Solve the problem.

31) Find the exact value of x in the figure. 31) _____



A) $7\sqrt{6}$ B) $7\sqrt{3}$ C) $\frac{14\sqrt{3}}{3}$ D) $\frac{14\sqrt{6}}{3}$

Find the reference angle for the given angle.

32) 78° 32) _____

A) 12° B) 102° C) 168° D) 78°

33) 138° 33) _____

A) 42° B) 58° C) 52° D) 48°

34) 211.4° 34) _____

A) 31.4° B) 121.4° C) 148.6° D) 58.6°

35) −400° 35) _____

A) 130° B) 50° C) 140° D) 40°

Give the exact value.

36) cos 210° 36) _____

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

37) tan 300° 37) _____

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

38) cot 120° 38) _____

A) $-\sqrt{3}$ B) $-\frac{\sqrt{3}}{3}$ C) –1 D) $\frac{\sqrt{3}}{3}$

39) sec 150° 39) _____

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

40) csc 330° 40) _____

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

Find the exact trigonometric function value.

41) sin (–1680°) 41) _____

A) $\frac{\sqrt{3}}{2}$ B) –1 C) $\frac{\sqrt{2}}{2}$ D) $\frac{1}{2}$

42) cos 960° 42) _____

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

Find all values of θ, if θ is in the interval [0, 360°) and has the given function value.

43) $\cos\theta = \frac{1}{2}$ 43) _____

A) 150° and 210° B) 60° and 300° C) 210° and 330° D) 60° and 120°

44) $\sin\theta = \frac{\sqrt{3}}{2}$ 44) _____

A) 60° and 120° B) 60° and 300° C) 150° and 210° D) 210° and 330°

Convert the degree measure to radians. Leave answer as a multiple of π.

45) 650° 45) _____

A) $\frac{65\pi}{36}$ B) $\frac{65\pi}{9}$ C) $\frac{65\pi}{18}$ D) $\frac{29\pi}{18}$

46) 288° 46) _____

A) $\frac{16\pi}{5}$ B) $\frac{8\pi}{5}$ C) $\frac{4\pi}{5}$ D) $\frac{9\pi}{5}$

47) –450° 47) _____

A) $\frac{5\pi}{2}$ B) $-\frac{5\pi}{2}$ C) $-\frac{5\pi}{4}$ D) -5π

Convert the radian measure to degrees. Round to the nearest hundredth if necessary.

48) $\frac{10\pi}{3}$ 48) _____

A) 600° B) 600.5° C) 599.5° D) 601°

49) $\frac{5\pi}{12}$ 49) _____

A) 150° B) 432π° C) 75° D) 144°

50) $-\frac{35}{9}\pi$ 50) _____

A) $-700°$ B) $-12.21°$ C) $-350°$ D) $-1400\pi°$

Find the length of an arc intercepted by a central angle θ in a circle of radius r. Round your answer to 1 decimal place.

51) $r = 38.81$ ft; $\theta = \frac{\pi}{3}$ radians 51) _____

A) 40.6 ft B) 20.3 ft C) 81.3 ft D) 121.9 ft

52) $r = 15.64$ cm.; $\theta = \frac{5}{4}\pi$ radians 52) _____

A) 61.4 cm B) 122.8 cm C) 19.6 cm D) 30.7 cm

53) $r = 31.31$ in.; $\theta = 92°$ 53) _____

A) 50.3 in. B) 25.1 in. C) 100.5 in. D) 16.0 in.

Solve the problem.

54) A car wheel has a 16–inch radius. Through what angle (to the nearest tenth of a degree) does the wheel turn when the car rolls forward 2 ft? 54) _____

A) 100.9° B) 95.9° C) 90.9° D) 85.9°

Answer Key
Testname: 12FALL_M50_EXAMPREP_PROBS

1) D
2) D
3) C
4) D
5) A
6) B
7) D
8) C
9) B
10) A
11) D
12) B
13) B
14) C
15) C
16) D
17) A
18) A
19) A
20) A
21) B
22) C
23) C
24) C
25) C
26) C
27) B
28) C
29) D
30) D
31) D
32) D
33) A
34) A
35) D
36) C
37) C
38) B
39) C
40) A
41) A
42) C
43) B
44) A
45) C
46) B
47) B
48) A
49) C
50) A
51) A
52) A
53) A
54) D