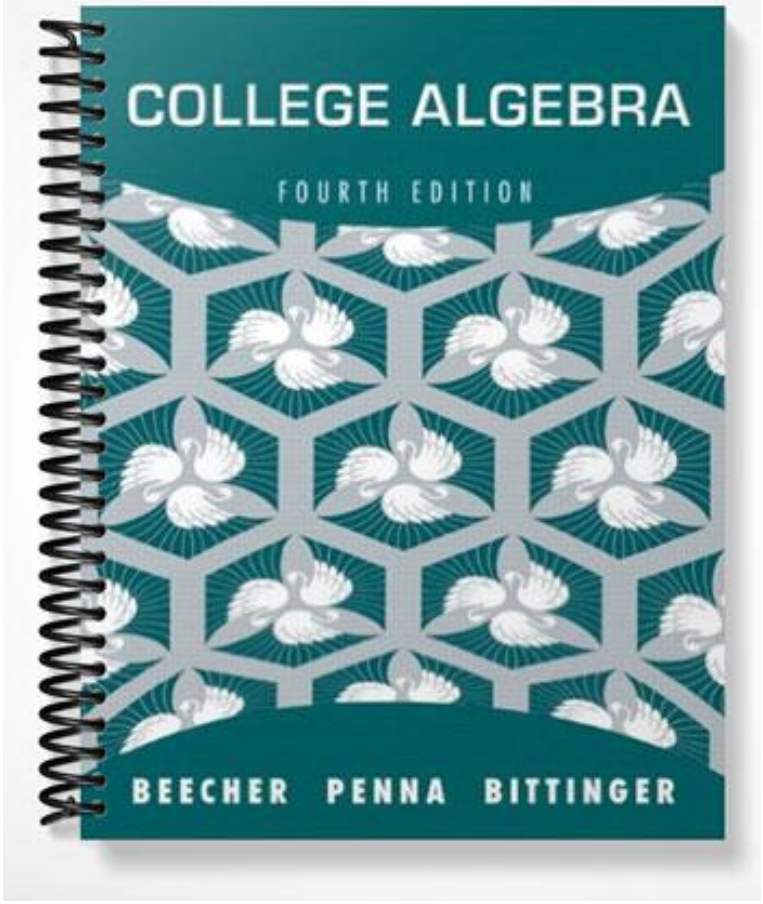
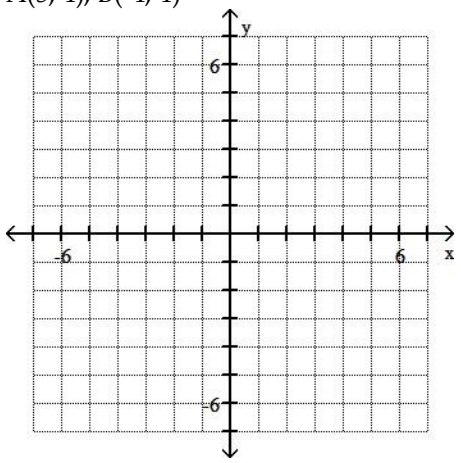
TEST BANK

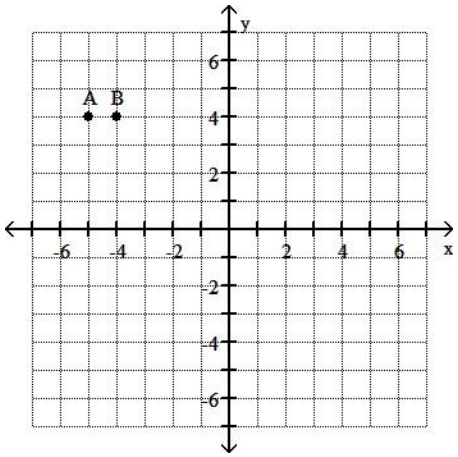


MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.
Plot the two points given by the ordered pairs.

1) A(5, 4), B(-4, 4) 1) _____



A)



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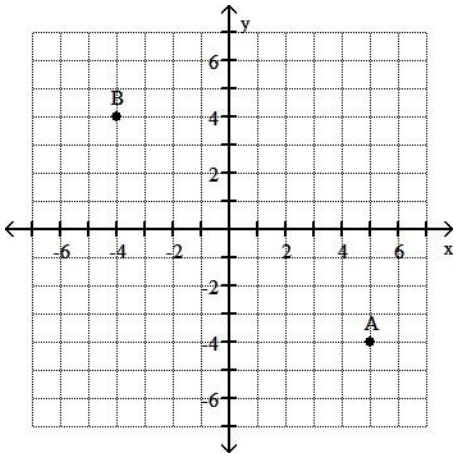
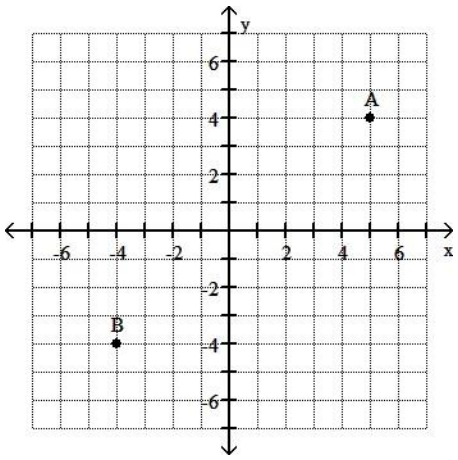
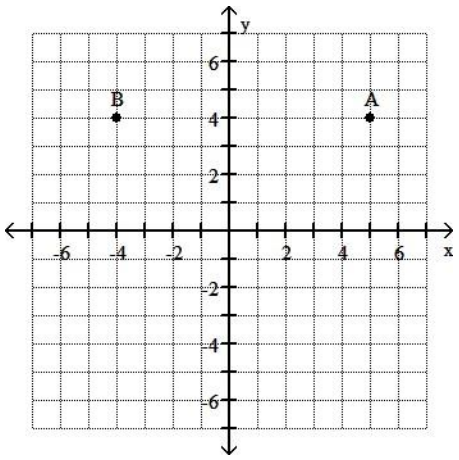


C)

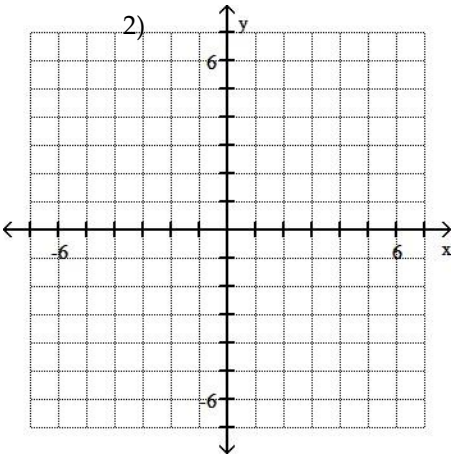


D)

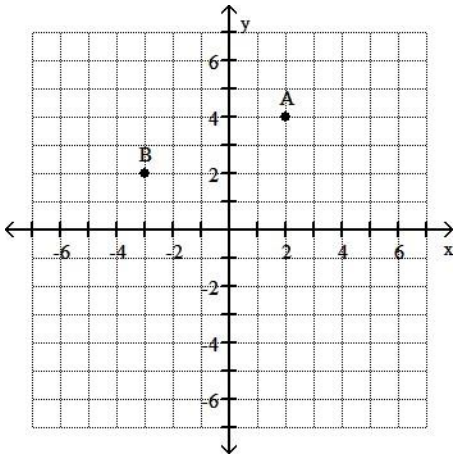


2) A(2, -4), B(-3, 2)

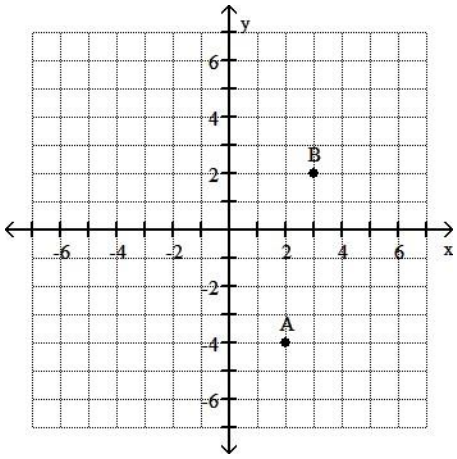
2)



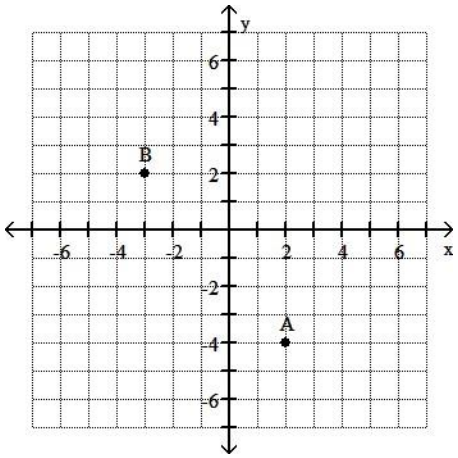
A)



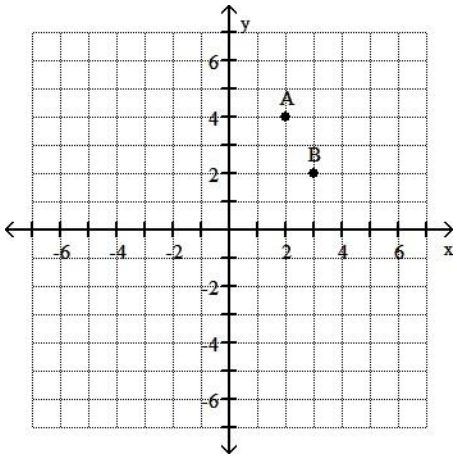
B)



C)

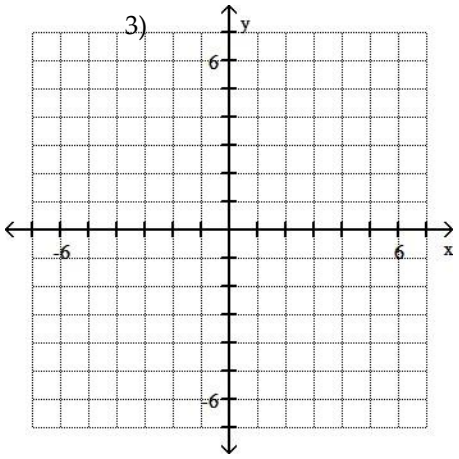


D)

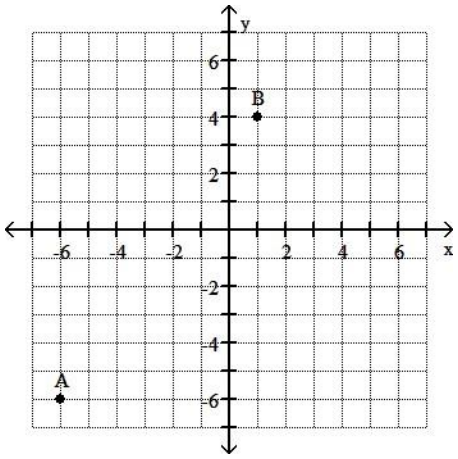


3) A(-6, -6), B(-1, 4)

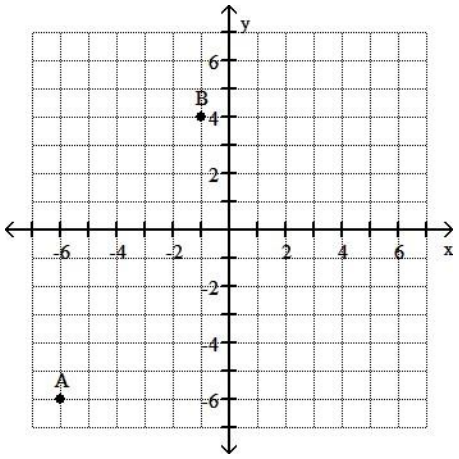
3)



A)



B)



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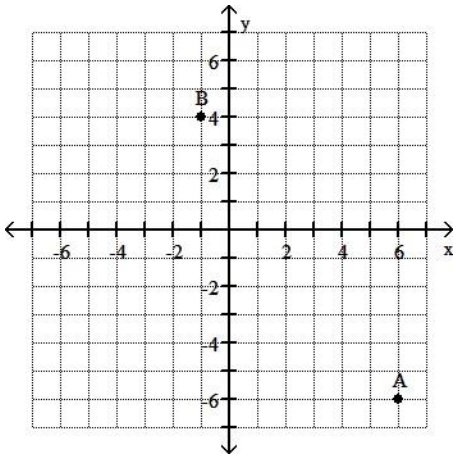
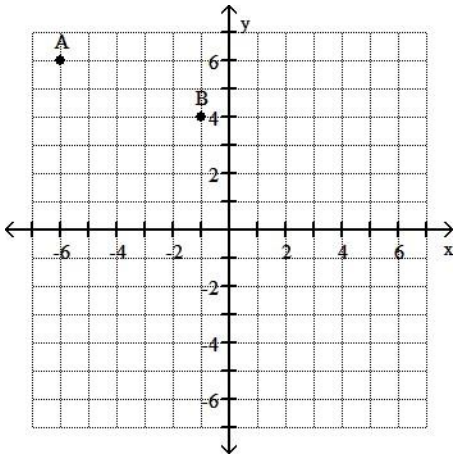
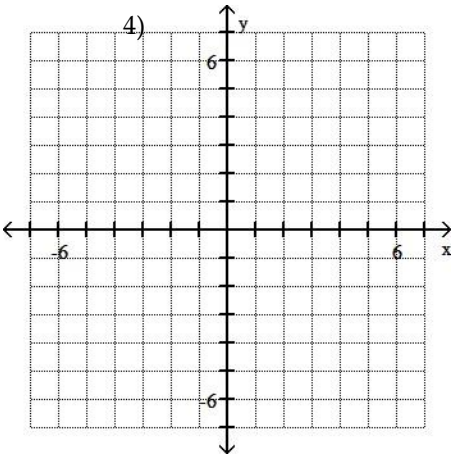


D)

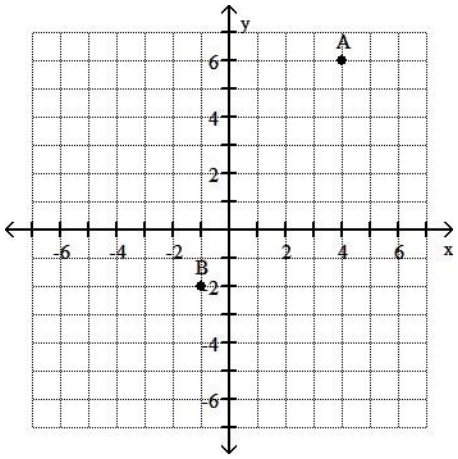


4) A(4, 6), B(1, -2)

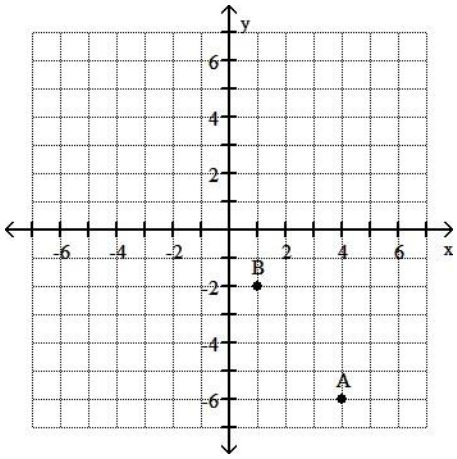
4)



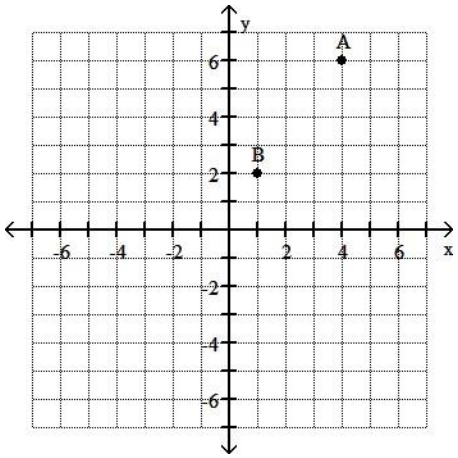
A)



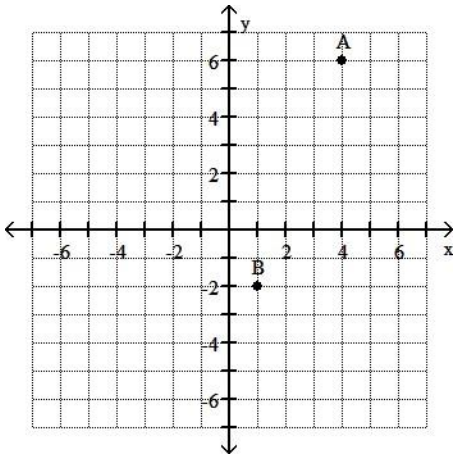
B)



C)

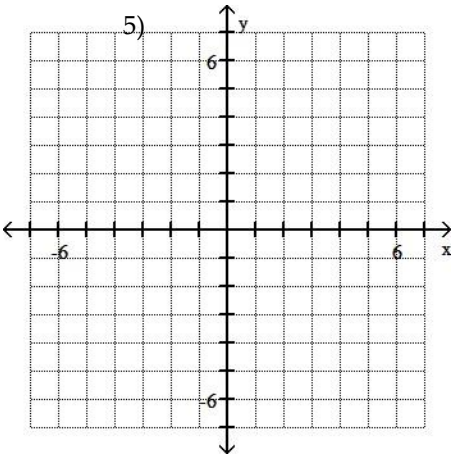


D)

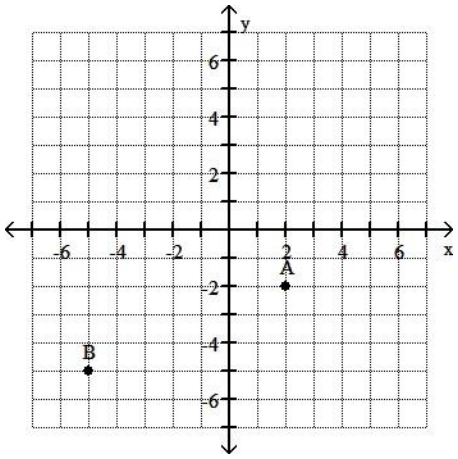


5) A(2, 2), B(-5, -5)

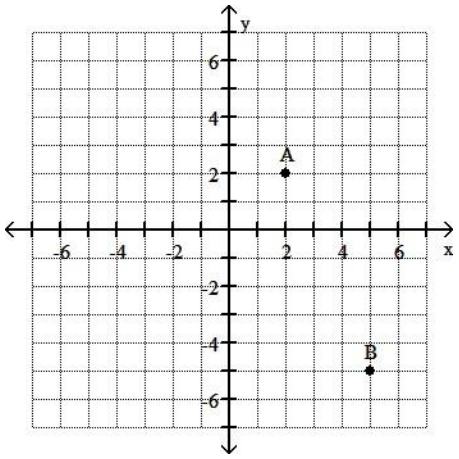
5)



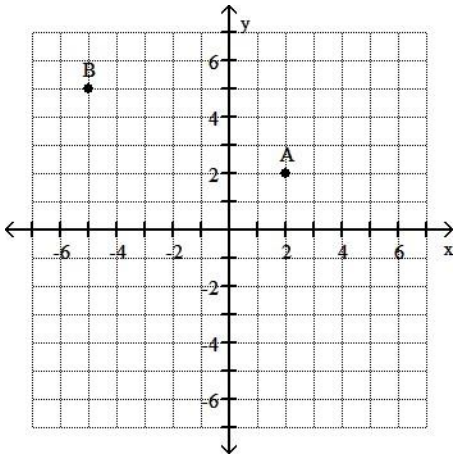
A)



B)



C)



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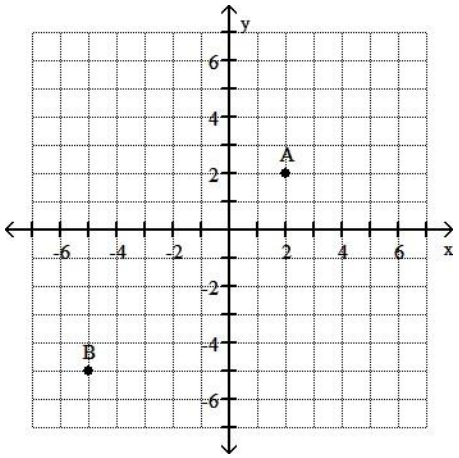
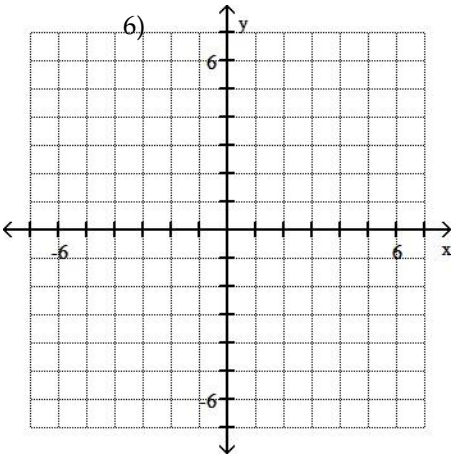
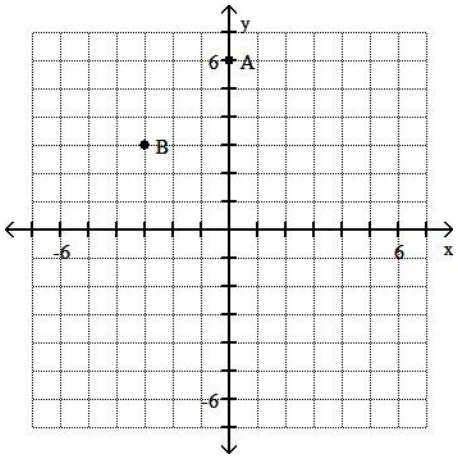


6) A(0, 6), B(-3, 3)

6)



A)



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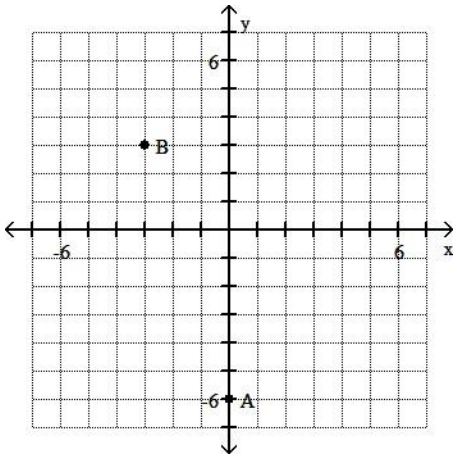

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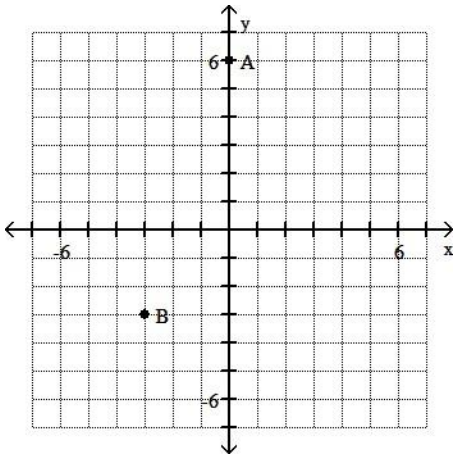

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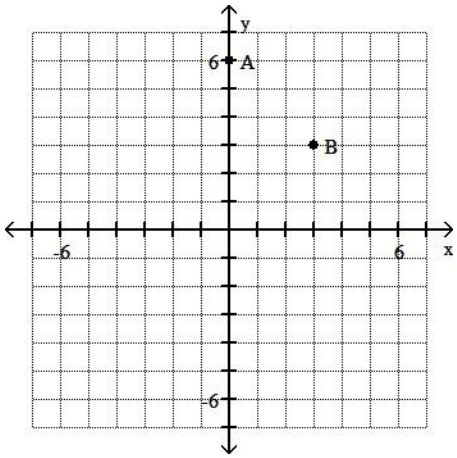
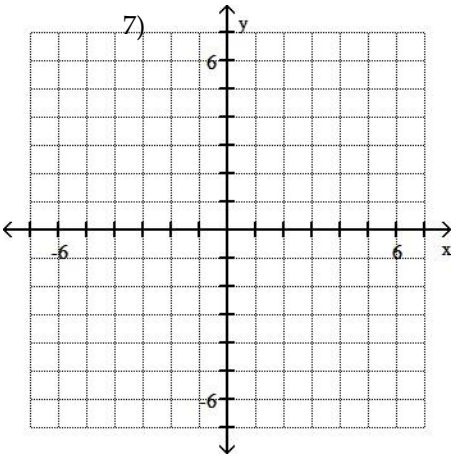
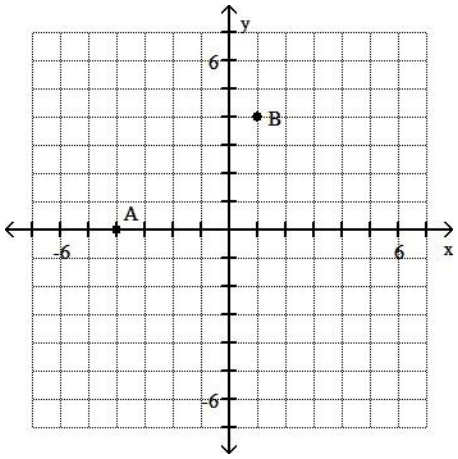


7) A(-4, 0), B(-1, 4)

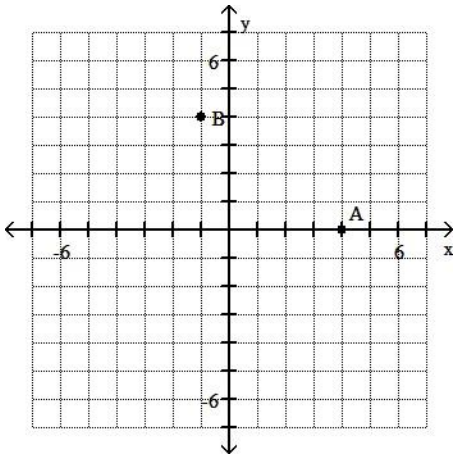
7)



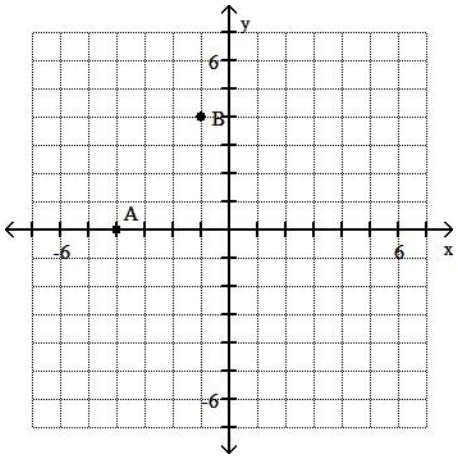
A)



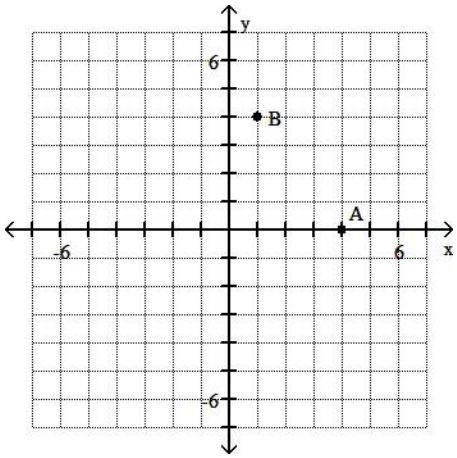
B)



C)

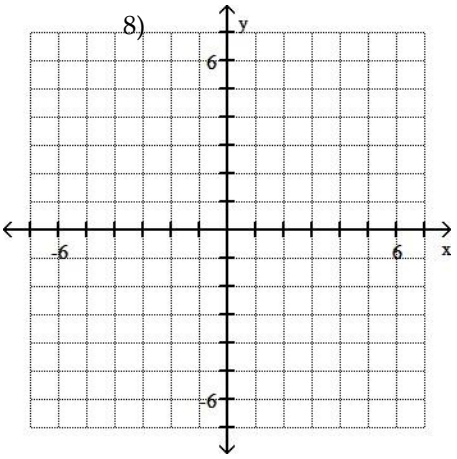


D)

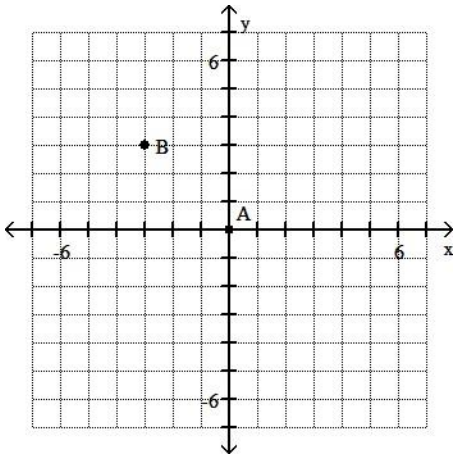


8) A(0, 0), B(3, 3)

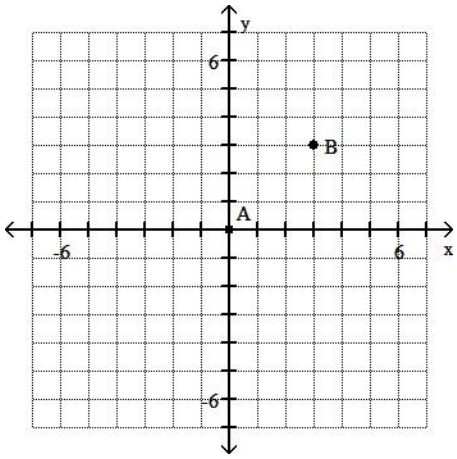
8)



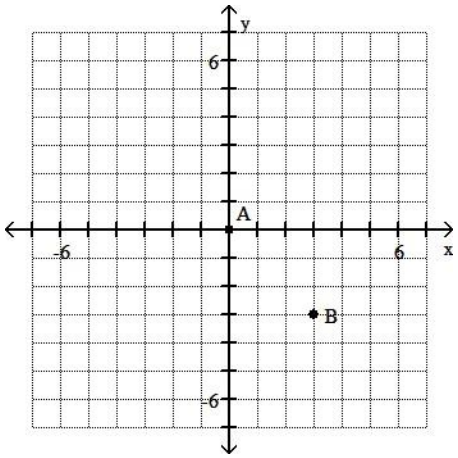
A)



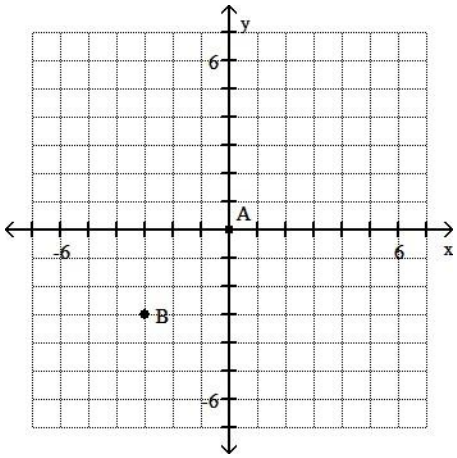
B)



C)

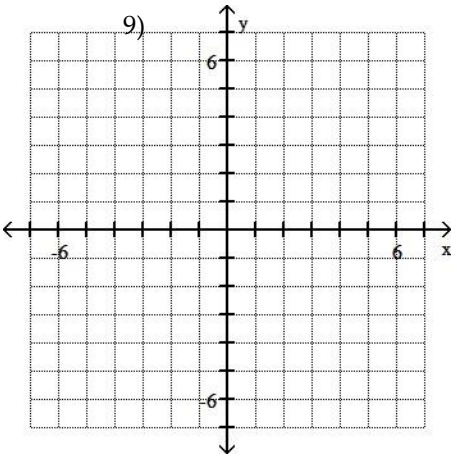


D)

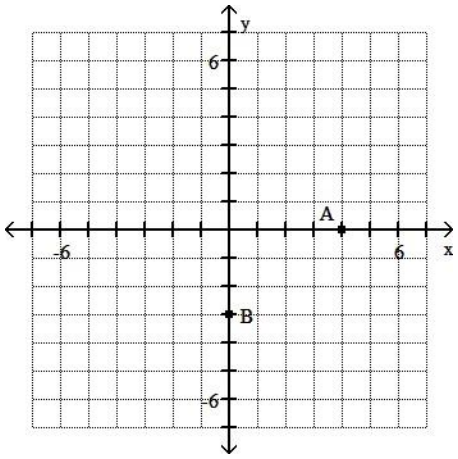


9) A(-4, 0), B(0, 3)

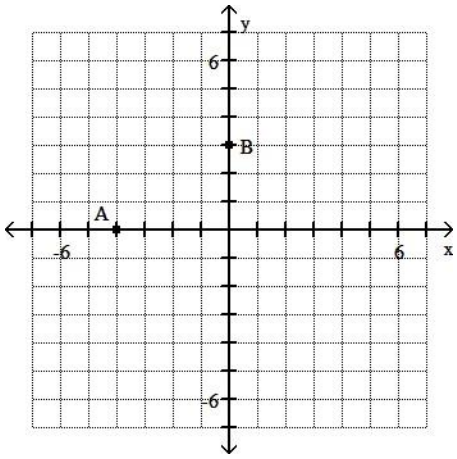
9)



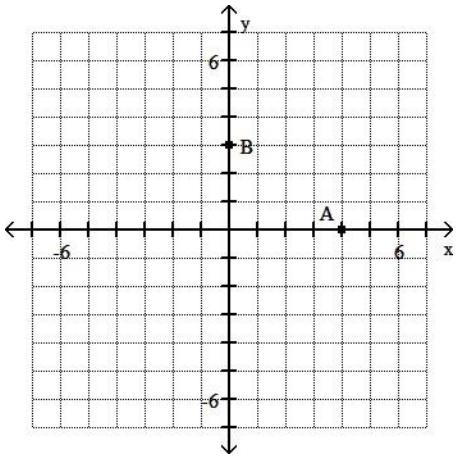
A)



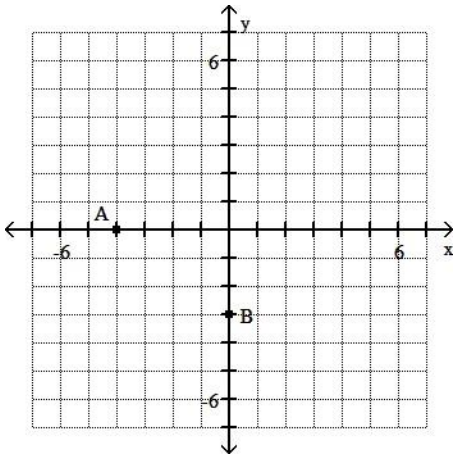
B)



C)



D)

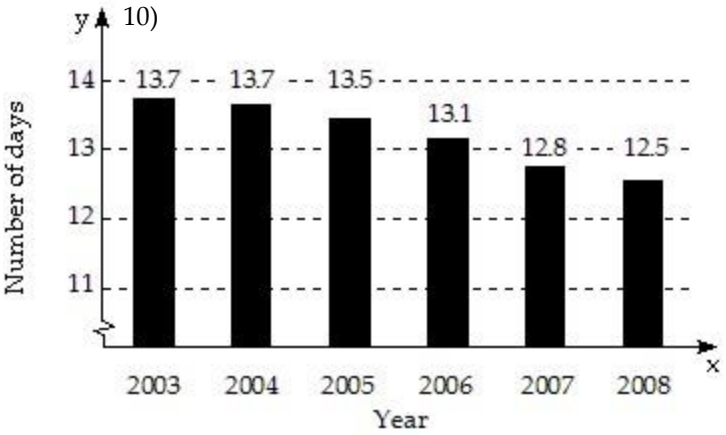


Express the data in the graph as ordered pairs, letting the first coordinate represent the year and the second coordinate the amount.

10) Summer Vacation:

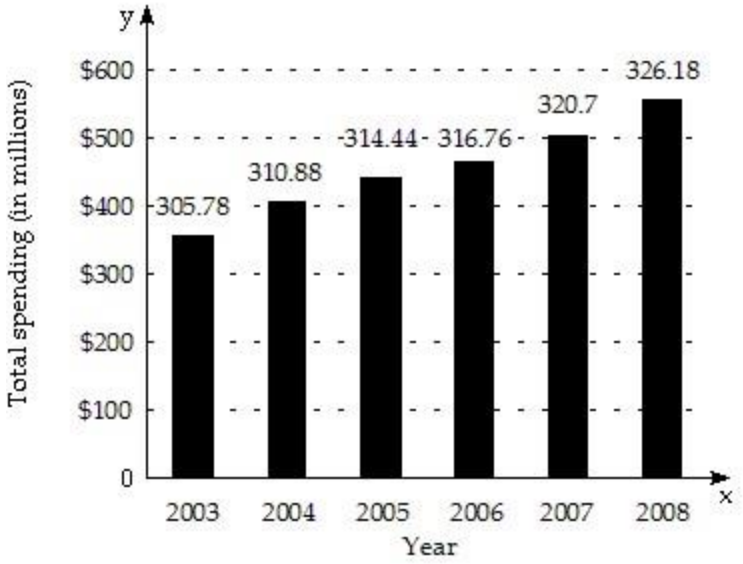
The length of the average summer vacation is decreasing.

10) ___
___



A) (2003, 13.7), (2004, 13.7), (2005, 13.5), (2006, 13.1), (2007, 12.8), (2008, 12.5)
B) (2003, 13.7), (2004, 13.7), (2005, 13.1), (2006, 13.5), (2007, 12.8), (2008, 12.5)
C) (13.7, 2003), (13.7, 2004), (13.5, 2005), (13.1, 2006), (12.5, 2007), (12.8, 2008)
D) (13.7, 2003), (13.7, 2004), (13.5, 2005), (13.1, 2006), (12.8, 2007), (12.5, 2008)

11) Total Advertisement Spending for Basketball Tournament 11) _____



A) (305.78, 2003), (310.88, 2004), (314.44, 2005), (316.76, 2006), (320.7, 2007), (326.18, 2008)
B) (1, 305.78), (2, 310.88), (3, 314.44),(4, 316.76), (5,320.7), (6, 326.18)
C) (2003, 310.88), (2004, 305.78), (2005, 314.44), (2006, 320.7), (2007, 316.76), (2008, 326.18)
D) (2003, 305.78), (2004, 310.88), (2005, 314.44), (2006, 316.76), (2007, 320.7), (2008, 326.18)

Use substitution to determine whether the given ordered pair is a solution of the given equation.

12) (-2, -14); $y = 5x - 4$ 12) _____
A) Yes B) No

13) (4, 3); $y = -3x + 15$ 13) _____
A) Yes B) No

14) (3, 3); $3x + 2y = 15$ 14) _____
A) Yes B) No

15) (5, 5); $2x - 3y = 25$ 15) _____

A) Yes B) No

16) $\left(0, \frac{3}{8}\right)$; $4x + 8y = 5$ 16) _____

A) Yes B) No

17) $\left(\frac{2}{3}, \frac{3}{4}\right)$; $6x - 4y = 1$ 17) _____

A) Yes B) No

18) $\left(\frac{2}{3}, \frac{1}{4}\right)$; $6x - 4y = 1$ 18) _____

A) Yes B) No

19) (0, 5); $x^2 + y^2 = 25$ 19) _____

A) Yes B) No

20) (2.1, 4.4); $x^2 + y^2 = 25$ 20) _____

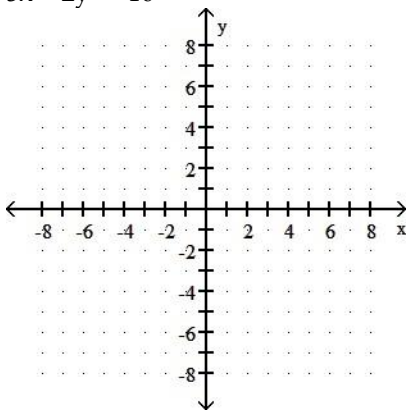
A) Yes B) No

21) (4, -1); $4x + 3y^2 = 19$ 21) _____

A) Yes B) No

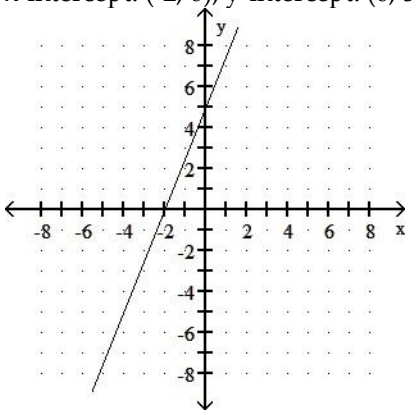
Find the intercepts and then graph the line.

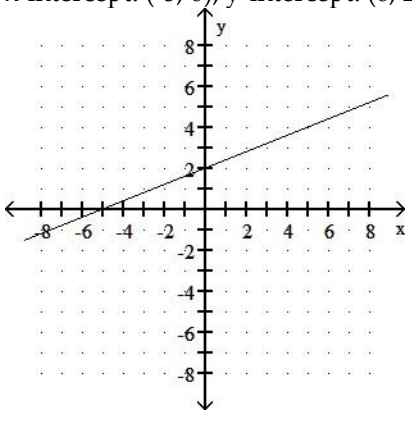
22) $5x + 2y = -10$ 22) _____



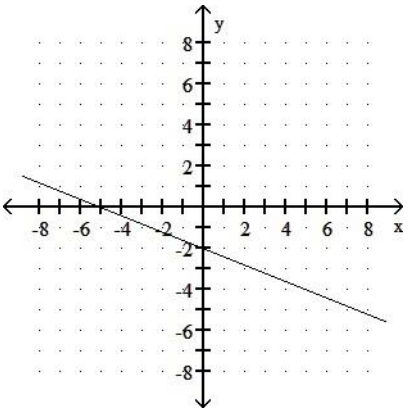
A) x-intercept: (-2, 0); y-intercept: (0, 5)

B) x-intercept: (-5, 0); y-intercept: (0, 2)

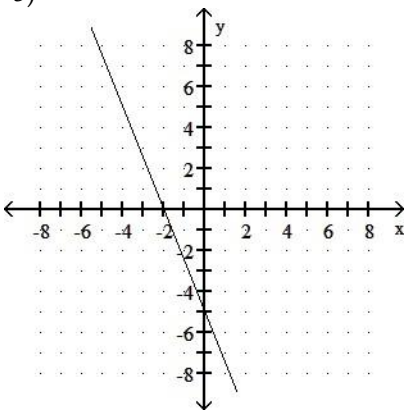




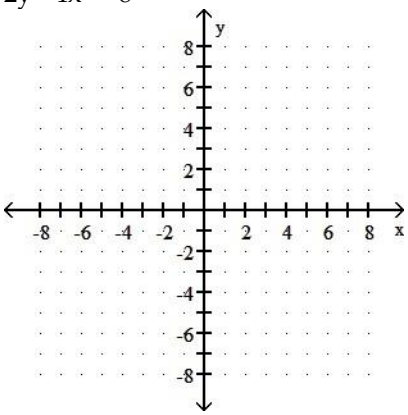
C) x-intercept: (-5, 0); y-intercept: (0, -2)



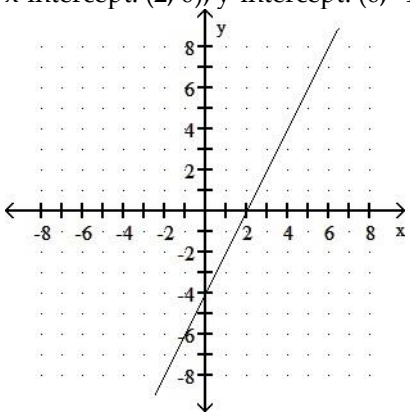
D) x-intercept: (-2, 0); y-intercept: (0, -5)



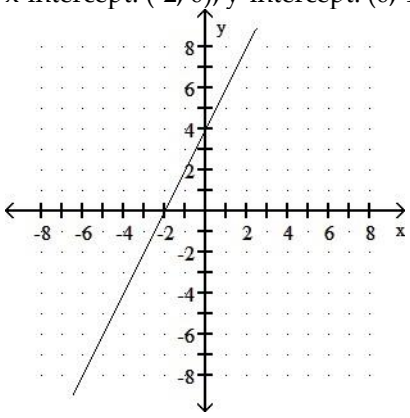
23) 2y - 4x = -8 23) _____



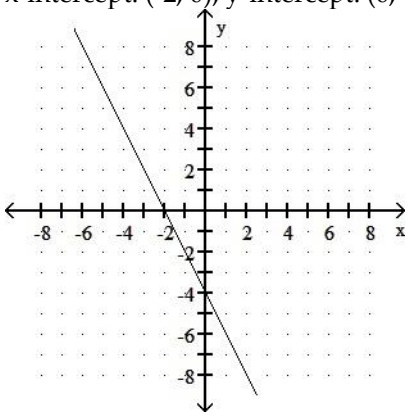
A) x-intercept: (2, 0); y-intercept: (0, -4)



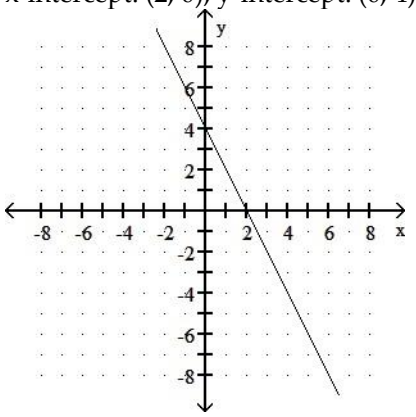
B) x-intercept: (-2, 0); y-intercept: (0, 4)



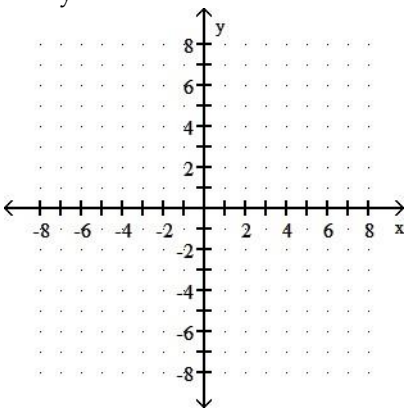
C) x-intercept: (-2, 0); y-intercept: (0, -4)



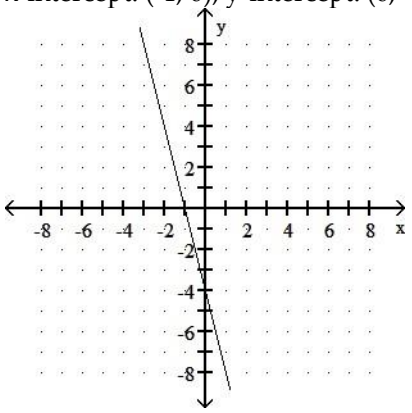
D) x-intercept: (2, 0); y-intercept: (0, 4)



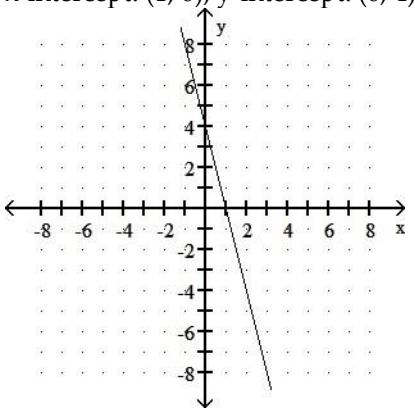
24) 4x + y = 4 24) _____



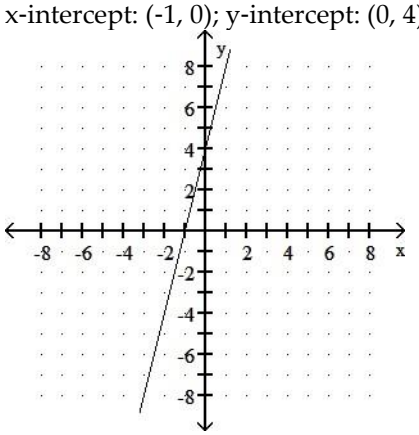
A) x-intercept: (-1, 0); y-intercept: (0, -4)



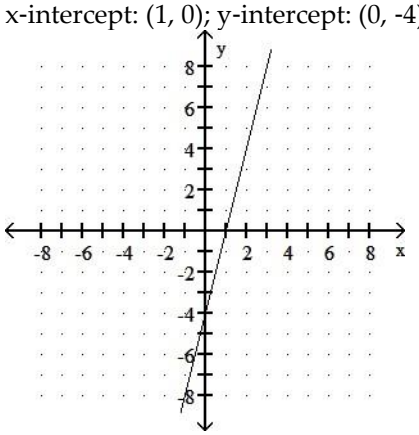
B) x-intercept: (1, 0); y-intercept: (0, 4)



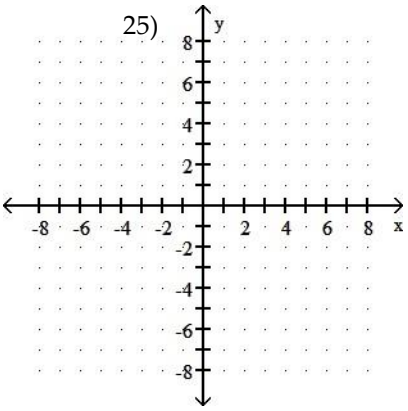
C) x-intercept: (-1, 0); y-intercept: (0, 4)



D) x-intercept: (1, 0); y-intercept: (0, -4)



25) 3x - y = -6

25) 

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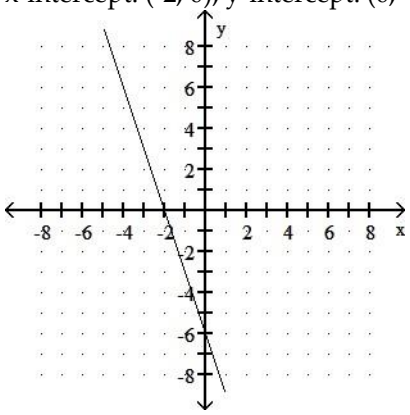
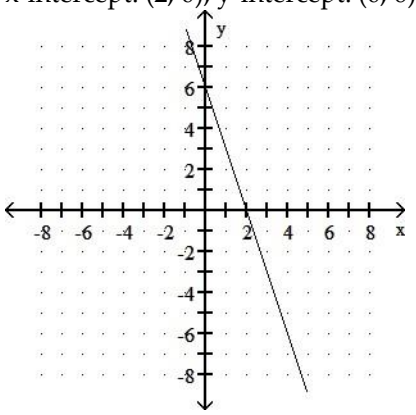
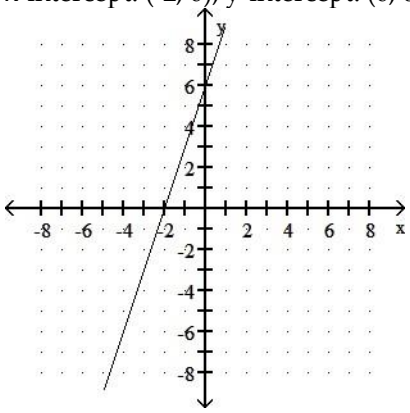
A) x-intercept: (-2, 0); y-intercept: (0, -6)



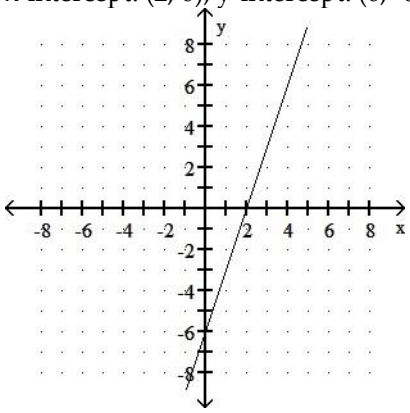
B) x-intercept: (2, 0); y-intercept: (0, 6)



C) x-intercept: (-2, 0); y-intercept: (0, 6)



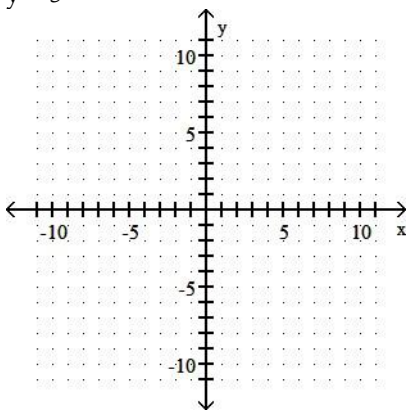
D) x-intercept: (2, 0); y-intercept: (0, -6)



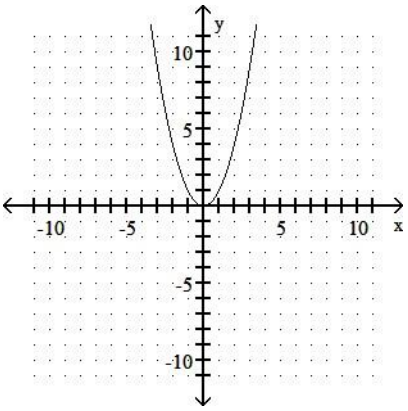
Graph the equation.

26) $y = 5^{x^2}$

26) _____



A)



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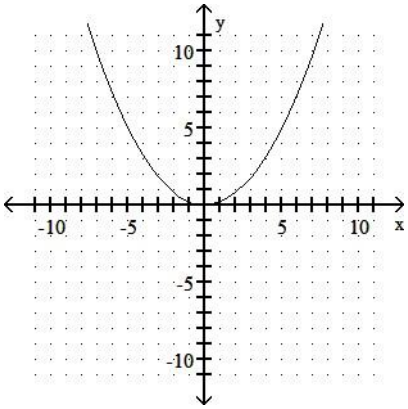

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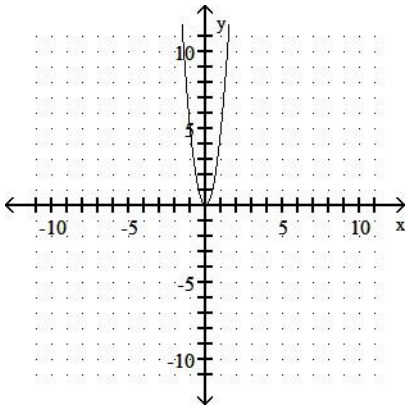

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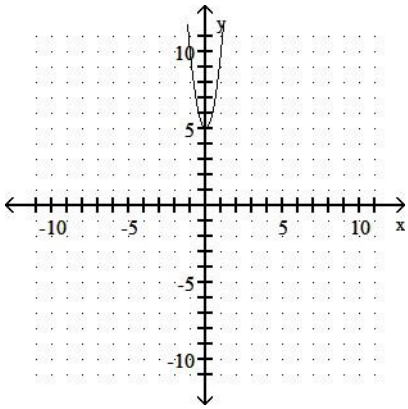
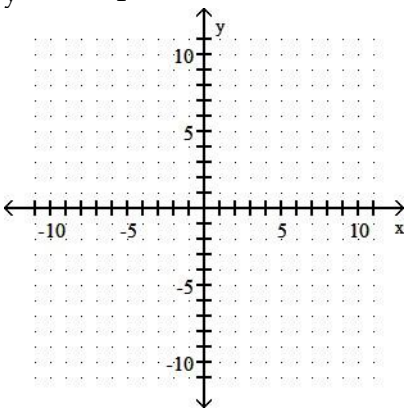
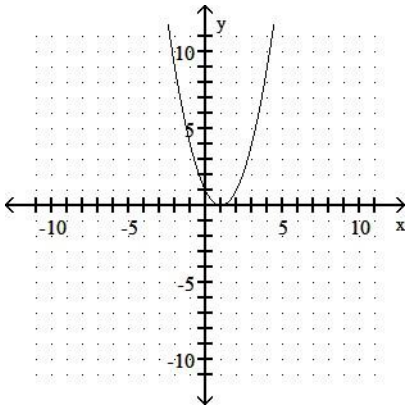


27) $y = x^2 + 1$

27) _____



A)



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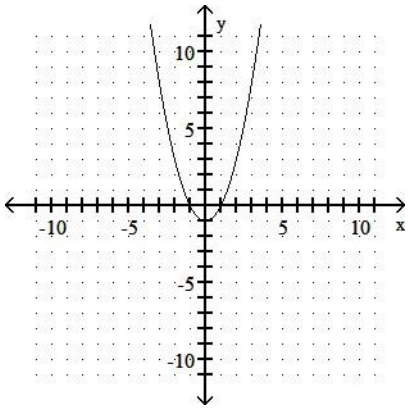

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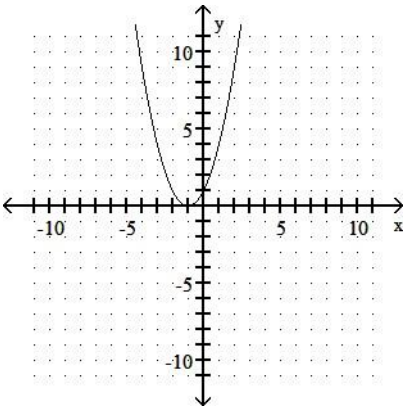

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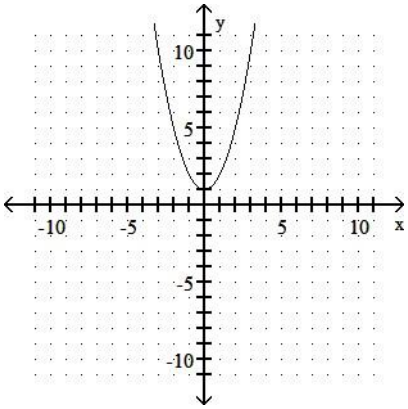
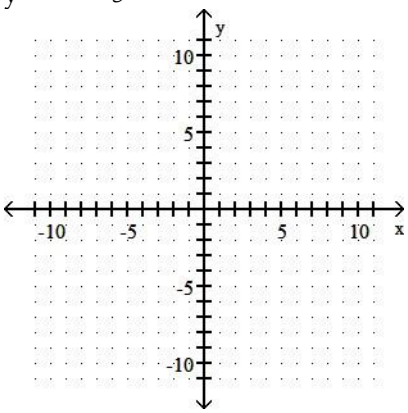
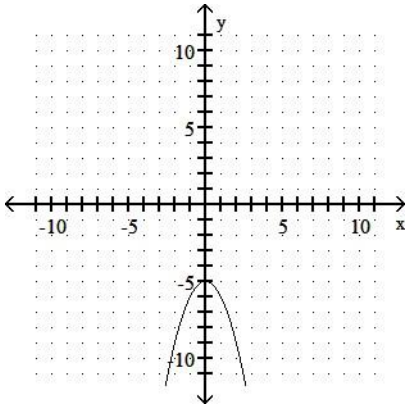


28) $y = -x^2 - 5$ 28) _____



A)



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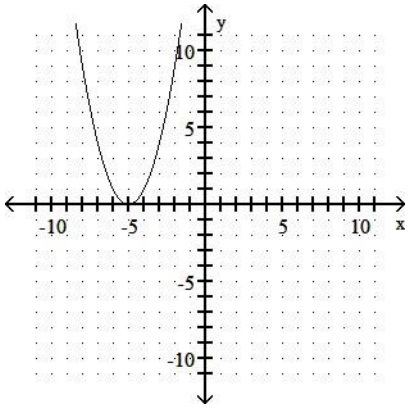

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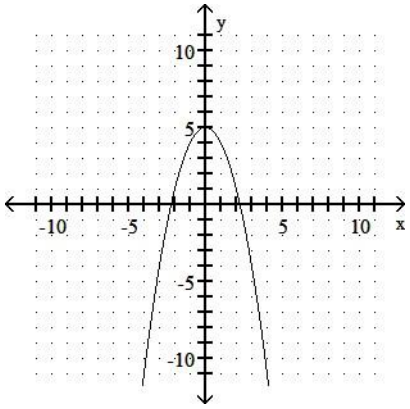

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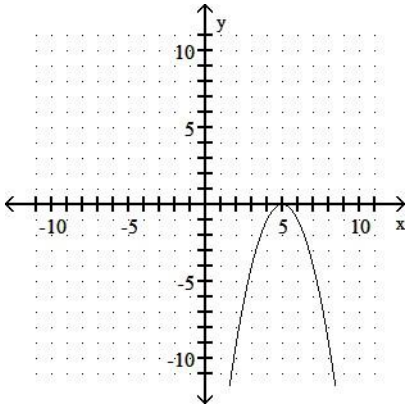
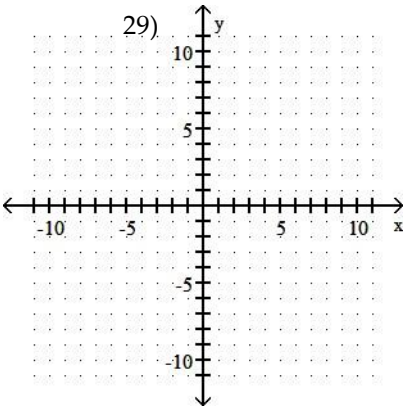


29) $y = x^2 + 4$

29) 

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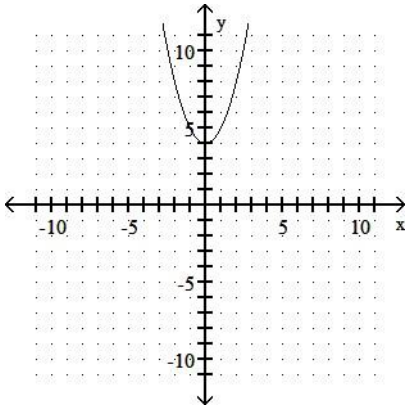
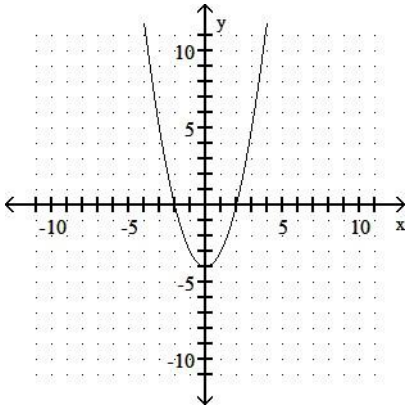
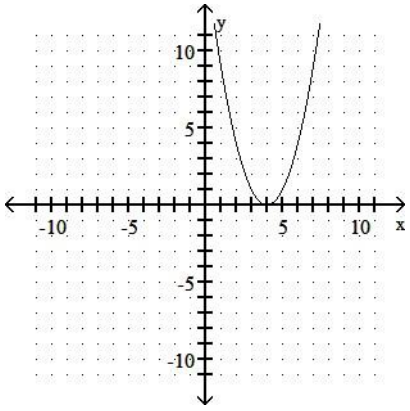
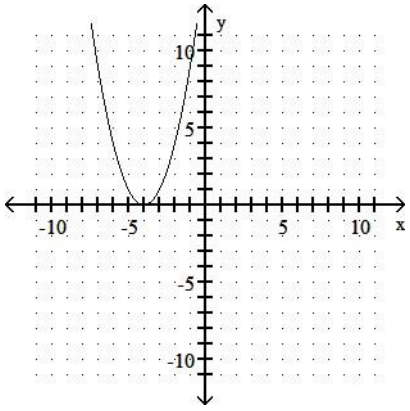
A) 

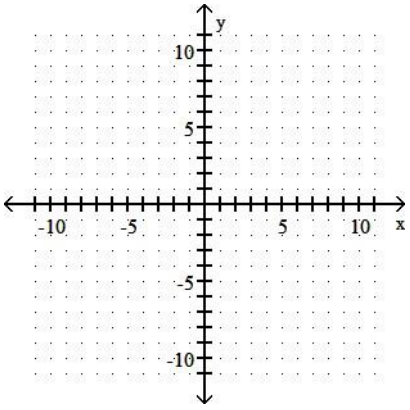
B) 

C) 

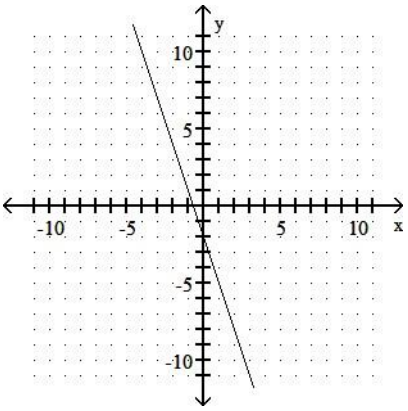
D) 

30) y = -3x - 2

30) _____



A)



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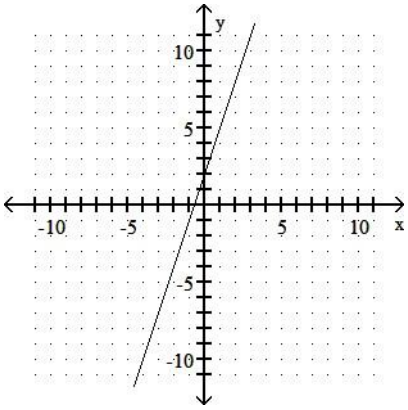
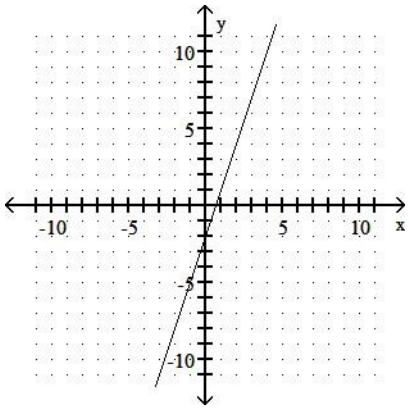
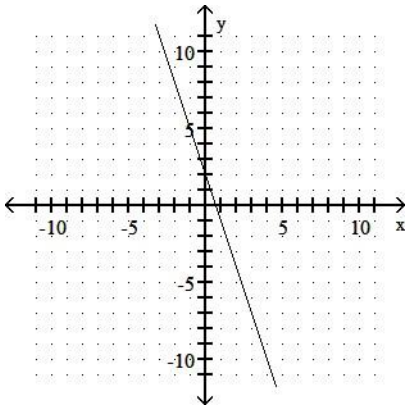


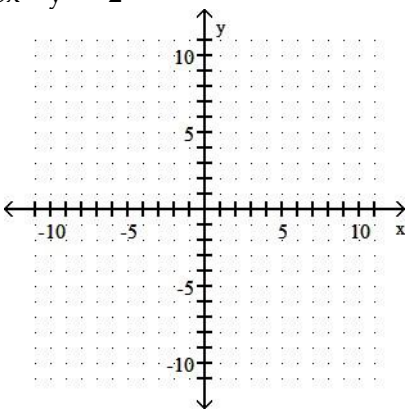
C)



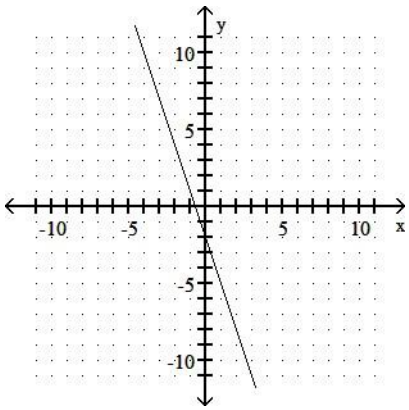
D)



31) $3x + y = -2$ 31) _____



A)



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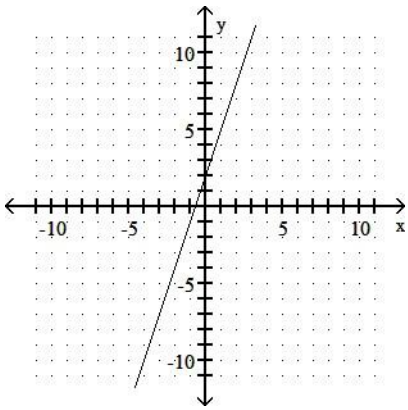

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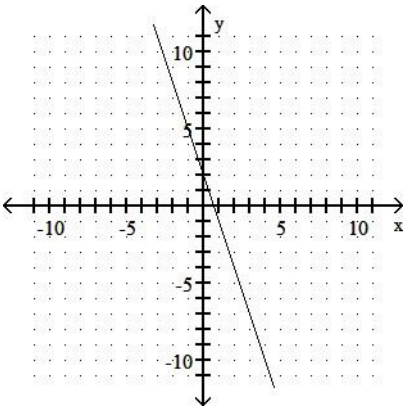
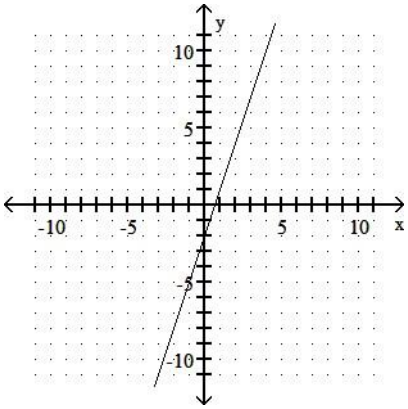
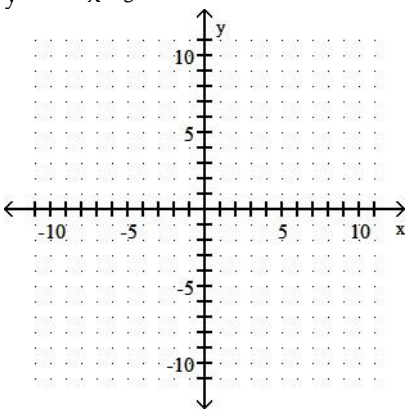


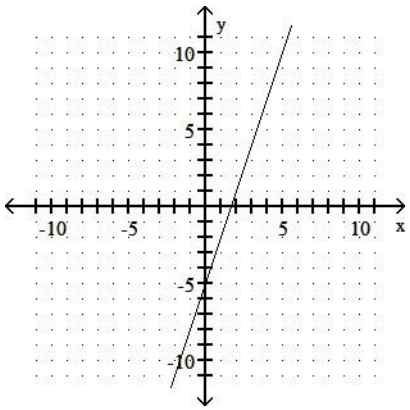
D)



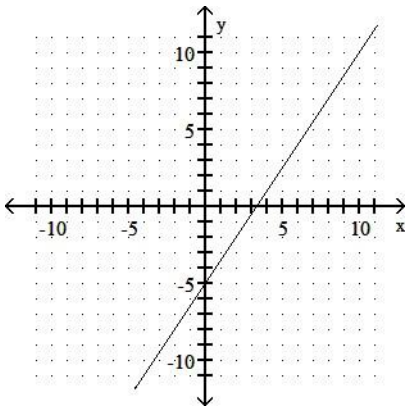
32) $y = \frac{3}{2}x - 5$ 32) _____



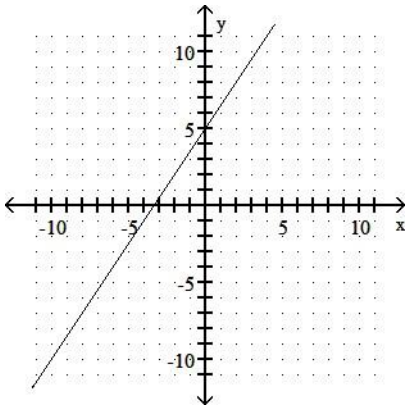
A)



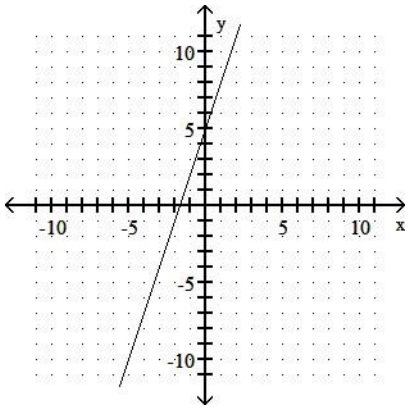
B)



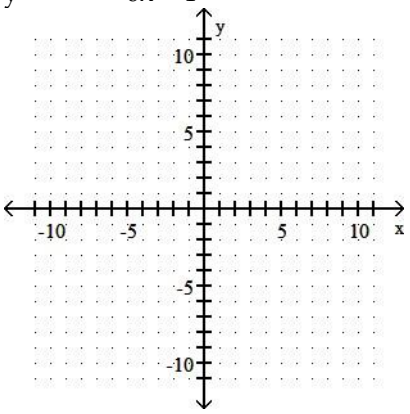
C)



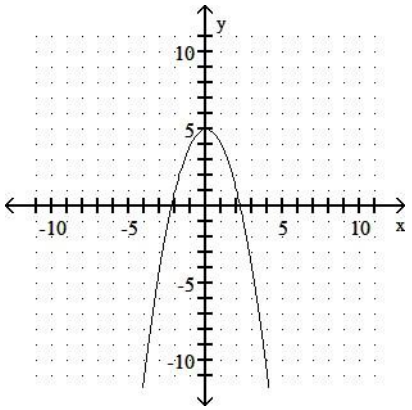
D)



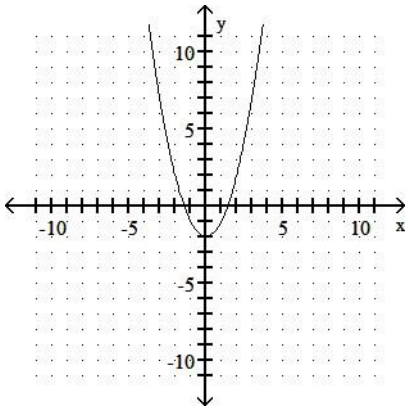
33) $y = x^2 + 6x + 4$ 33) _____



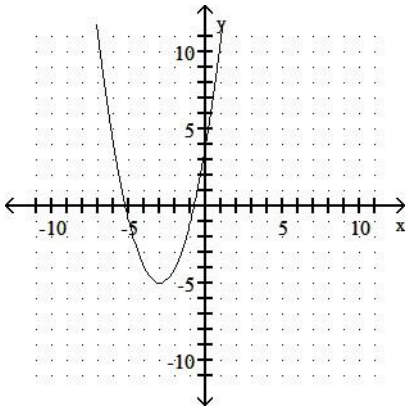
A)



B)



C)



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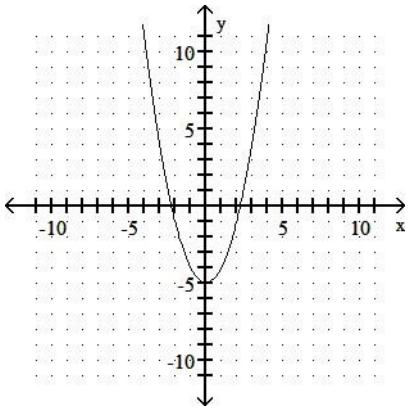
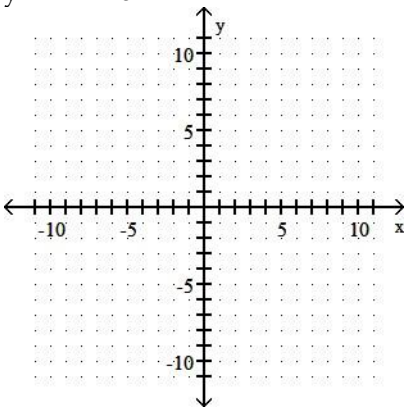
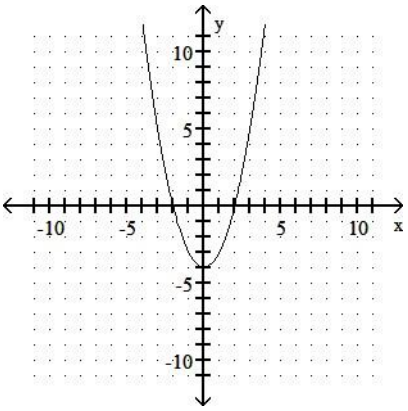


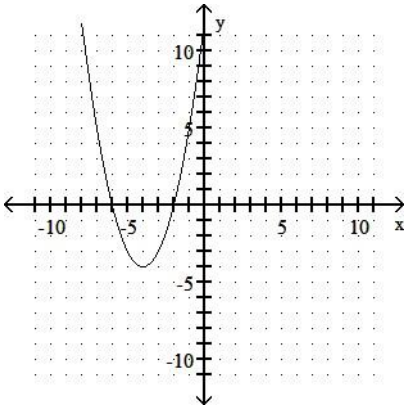
34) $y = x^2 - 8x + 12$ 34) _____



A)



B)



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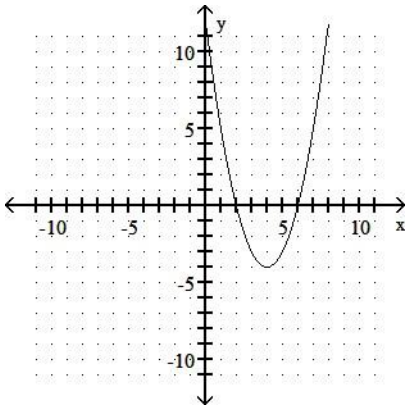
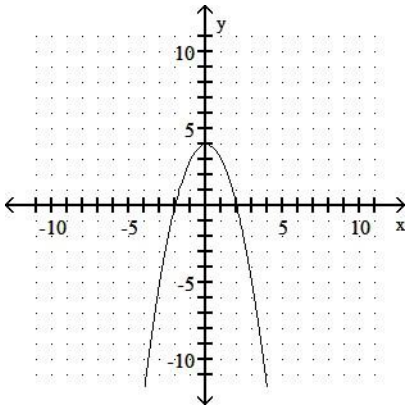


D)



Find the distance between the pair of points. Give an exact answer, and where appropriate, an approximation to three decimal places.

35) (0, 0) and (x, y) 35) _____

A) $x + y$ B) $x^2 + y^2$ C) $\sqrt{x^2 + y^2}$ D) $\sqrt{x + y}$

36) $\left(-\frac{5}{4}, 2\right)$ and $\left(-\frac{5}{4}, \frac{1}{2}\right)$ 36) _____

A) $\frac{7}{2}$ B) $\frac{25}{4}$ C) $\frac{3}{2}$ D) $\frac{5}{2}$

37) (3, 3) and (7, 8) 37) _____

A) $\sqrt{18}$, 4.243 B) $\sqrt{2}$, 1.414 C) $\sqrt{41}$, 6.403 D) $\sqrt{82}$, 9.055

38) (1, 4) and (0, 7) 38) _____

A) $\sqrt{20}$, 4.472 B) $\sqrt{10}$, 3.162 C) $\sqrt{4}$, 2.000 D) $\sqrt{8}$, 2.828

39) (-3, -2) and (0, 2) 39) _____

A) 25 B) 7 C) 5 D) $\sqrt{50}$, 7.071

40) (0.5, 1.0) and (3.4, 1.9) 40) _____

A) 6.894 B) 5.880 C) 4.860 D) 3.036

41) (-2.5, 2.9) and (4, -12.7) 41) _____

A) $\sqrt{528.97}$, 22.999 B) $\sqrt{201.11}$, 14.181 C) 16.9 D) 33.8

Find the requested measurement.

42) The points (-2, -3) and (-2, 8) are the endpoints of the diameter of a circle. Find the length of the radius of the circle. 42) _____

A) 6 B) 5 C) 6.5 D) 5.5

43) The point (-2, -3) is on a circle that has center (6, -3). Find the length of the diameter of the circle. 43) _____

A) 16 B) 8 C) 16.5 D) 15

44) The point (-2, -3) is on a circle that has center (-2, 8). Find the length of the diameter of the circle. 44) _____

A) 22.5 B) 21 C) 22 D) 5.5

Use the distance formula and the Pythagorean theorem to determine whether the set of points could be vertices of a right triangle.

45) (3, 6), (7, 6), (7, 12) 45) _____

A) Yes B) No

46) (3, -5), (5, -1), (7, -2) 46) _____

A) Yes B) No

47) (-3, -4), (3, -2), (7, -14) 47) _____

A) Yes B) No

48) (3, -6), (9, -4), (8, -9) 48) _____

A) Yes B) No

49) (-4, -1), (2, 1), (8, -6) 49) _____

A) Yes B) No

50) (-7, -3), (4, -14), (6, -12) 50) _____

A) Yes B) No

Find the midpoint of the segment having the given endpoints.

51) (6, 1) and (2, 9) 51) _____

A) (4, -8) B) $(5, 4)$ C) (8, 10) D) $(4, 5)$

52) (-4, -2) and (-3, 1) 52) _____

A) $\left(-\frac{1}{2}, -\frac{3}{2}\right)$ B) (-1, -3) C) (-7, -1) D) $\left(-\frac{7}{2}, -\frac{1}{2}\right)$

53) (7, 1) and (-16, -16) 53) _____

A) $\left(-\frac{9}{2}, -\frac{15}{2}\right)$ B) (9, 15) C) (-9, -15) D) $\left(\frac{23}{2}, \frac{17}{2}\right)$

54) (0.6, 0.4) and (-2.8, -1.1) 54) _____

A) (-1.1, -0.35) B) (-0.35, -1.1) C) (-0.75, -1.7) D) (-1.7, -0.75)

55) (8, 1) and (1, 4) 55) _____

A) (9, 5) B) $\left(\frac{7}{2}, -\frac{3}{2}\right)$ C) (7, -3) D) $\left(\frac{9}{2}, \frac{5}{2}\right)$

56) (-4, -7) and (3, 5) 56) _____

A) (-7, -12) B)

$\left(-\frac{7}{2}, -6\right)$ C) $\left(-\frac{1}{2}, -1\right)$ D) (-1, -2)

57) (-1, 3) and (-6, -1) 57) _____

A) (-7, 2) B) (5, 4) C) $\left(-\frac{7}{2}, 1\right)$ D) $\left(\frac{5}{2}, 2\right)$

58) $\left(-\frac{5}{2}, \frac{7}{2}\right)$ and $\left(\frac{3}{2}, -\frac{5}{2}\right)$ 58) _____

A) (64, 144) B) $\left(-\frac{1}{2}, \frac{1}{2}\right)$ C) (4, 4) D) $(-2, 3)$

Answer the question.

59) The points (-6, 7) and (2, 5) are the points at which a particular diameter of a circle intersects the circle. What are the coordinates of the center of the circle? 59) _____

A) (-1, 6) B) (-1, 7) C) (-2, 6) D) (-2, 7)

60) The points ($\sqrt{3}$, -2) and ($12\sqrt{3}$, 15) are the points at which a particular diameter of a circle intersects the circle. What are the coordinates of the center of the circle? 60) _____

A) $\left(\frac{13\sqrt{3}}{2}, \frac{13}{2}\right)$ B) $\left(\frac{15\sqrt{3}}{2}, \frac{11}{2}\right)$ C) $\left(\frac{13\sqrt{3}}{2}, \frac{11}{2}\right)$ D) $\left(\frac{15\sqrt{3}}{2}, \frac{13}{2}\right)$

61) The points (-6, 5) and (6, 5) are the points at which the diagonal of a square intersects the square. What are the coordinates of the center of the square? 61) _____

A) (0, 5) B) (0, 6) C) (1, 6) D) (1, 5)

62) The points ($\sqrt{3}$, -2) and ($6\sqrt{3}$, 3) are the points at which the diagonal of a square intersects the square. What are the coordinates of the center of the square? 62) _____

A) $\left(\frac{9\sqrt{3}}{2}, \frac{1}{2}\right)$ B) $\left(\frac{9\sqrt{3}}{2}, \frac{-1}{2}\right)$ C) $\left(\frac{7\sqrt{3}}{2}, \frac{1}{2}\right)$ D) $\left(\frac{7\sqrt{3}}{2}, \frac{-1}{2}\right)$

63) The points (2, 3), (5, 6), (7, -2), and (10, 1) are the vertices of a quadrilateral. Is the quadrilateral a rectangle? 63) _____

A) Yes B) No

64) The points (2, 7), (5, 8), (7, 0), and (10, 3) are the vertices of a quadrilateral. Is the quadrilateral a rectangle? 64) _____

A) Yes B) No

65) Graph the rectangle with vertices (1, 4), (4, 7), (6, -1), and (9, 2). Are the midpoints of the sides of the rectangle the vertices of a rectangle? 65) _____

A) Yes B) No

66) Graph the rectangle with vertices (1, 4), (4, 7), (6, -1), and (9, 2). Are the midpoints of the sides the vertices of a square? 66) _____

A) Yes B) No

Find an equation for the circle.

67) Center at (-3, 0), radius 6 67) _____

A) x^2

$+ (y+3)^2 = 6$

B) $(x-3)^2 + y^2 = 36$

C) $x^2 + (y-3)^2 = 6$

D) $(x+3)^2 + y^2 = 36$

68) Center at (0, -5), radius 1 68) _____

A) $(x+5)^2 + y^2 = 1$ B) $x^2 + (y-5)^2 = 1$ C) $x^2 + (y+5)^2 = 1$ D) $(x-5)^2 + y^2 = 1$

69) Center at (3, 7), radius $\sqrt{10}$ 69) _____

A) $(x+7)^2 + (y+3)^2 = 100$

B) $(x-3)^2 + (y-7)^2 = 10$

C) $(x-7)^2 + (y-3)^2 = 100$

D) $(x+3)^2 + (y+7)^2 = 10$

70) Center (23, 18), containing the origin 70) _____

A) $(x-23)^2 + (y-18)^2 = 853$

B) $(x-18)^2 + (y-23)^2 = 29$

C) $(x-18)^2 + (y-23)^2 = 853$

D) $(x-23)^2 + (y-18)^2 = 29$

71) Center (17, 10), tangent (touching at one point) to the x-axis 71) _____

A) $(x-17)^2 + (y-10)^2 = 289$

B) $(x-10)^2 + (y-17)^2 = 10$

C) $(x-10)^2 + (y-17)^2 = 289$

D) $(x-17)^2 + (y-10)^2 = 100$

72) Endpoints of a diameter (-2, -5), (-2, 5) 72) _____

A) $(x+5)^2 + y^2 = 4$

B) $(x+2)^2 + y^2 = 25$

C) $x^2 + (y+5)^2 = 4$

D) $(x+2)^2 + y^2 = 5$

73) Endpoints of a diameter (-8, 7), (2, 3) 73) _____

A) $(x+3)^2 + y^2 = 4$

B) $(x+3)^2 + (y-5)^2 = 29$

C) $(x-5)^2 + (y+3)^2 = 29$

D) $x^2 + (y-5)^2 = 25$

74) Center at (2, - 2), diameter of length 7.8 74) _____

A) $(x-2)^2 + (y-2)^2 = 3.9$

B) $(x+2)^2 - (y+2)^2 = 60.84$

C) $(x-2)^2 + (y+2)^2 = 15.21$

D) $(x+2)^2 + (y-2)^2 = 15.21$

75) The points (2, 5), (3 , 2), (5, 6), and (6, 3) are vertices of an inscribed square. 75) _____

A) $(x-4)^2 + (y-4)^2 = \sqrt{5}$

B) $(x-4)^2 - (y-4)^2 = \sqrt{5}$

C) $(x-4)^2 + (y-4)^2 = 5$

D) $(x+4)^2 + (y+4)^2 = 5$

76) 76) _____

Center at (4, -8), radius of length $\frac{1}{2}$

A) $(x-4)^2 + (y+8)^2 = \frac{1}{4}$

B) $(x+4)^2 - (y+8)^2 = 16$

C) $(x+4)^2 + (y-8)^2 = 4$

D) $(x-4)^2 + (y-8)^2 = \frac{1}{4}$

Find the center and radius of the circle.

77) $(x - 6)^2 + y^2 = 144$ 77) _____

A) (0, -6); 144 B) (-6, 0); 144 C) (6, 0); 12 D) (0, 6); 12

78) $(x + 2)^2 + (y + 1)^2 = 64$ 78) _____

A) (2, 1); 8 B) (1, 2); 64 C) (-1, -2); 64 D) (-2, -1); 8

79) $x^2 + y^2 = 100$ 79) _____

A) (0, 0); 10 B) (0, 10); 100 C) (10, 10); 100 D) (0, 0); 100

80) $(x - 8)^2 + y^2 = 49$ 80) _____

A) (0, -8); 7 B) (8, 0); 7 C) (-8, 0); 49 D) (0, 8); 49

81) $x^2 + (y - 1)^2 = 16$ 81) _____

A) (0, 1); 4 B) (1, 0); 16 C) (-1, 0); 16 D) (0, -1); 4

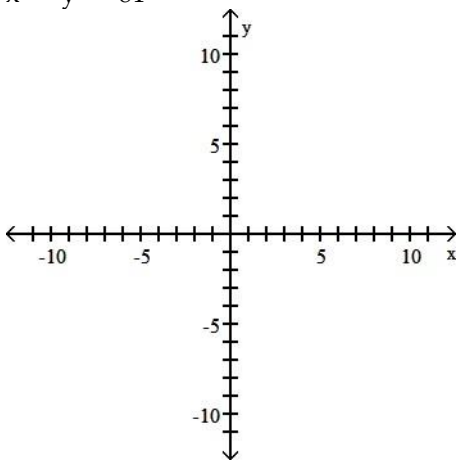
82) $(x + 7)^2 + (y + 6)^2 = 16$ 82) _____

A) (7, 6); 16 B) (6, 7); 16 C) (-6, -7); 4 D) (-7, -6); 4

Graph the circle using the given equation.

83) $x^2 + y^2 = 81$ 83) _____

A)



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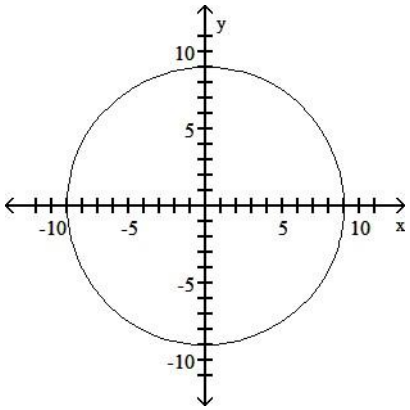

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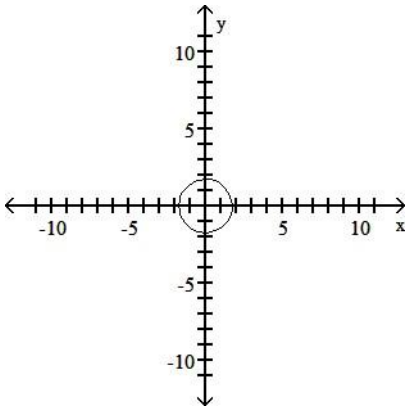

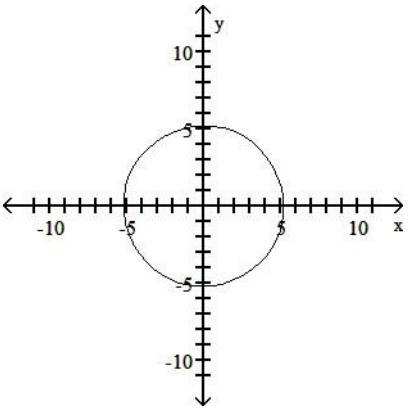

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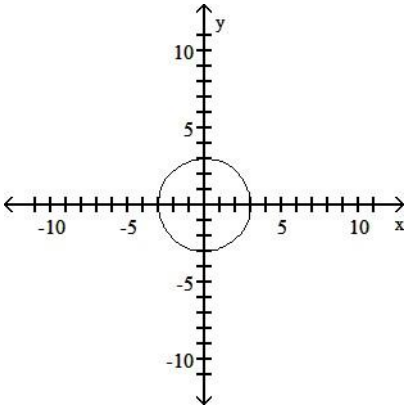
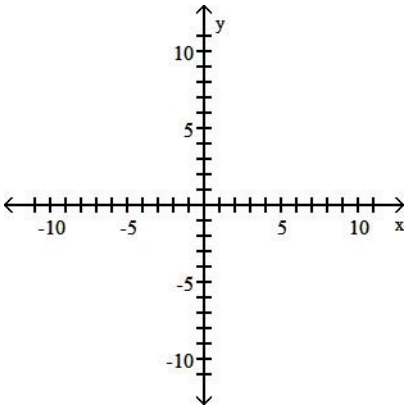
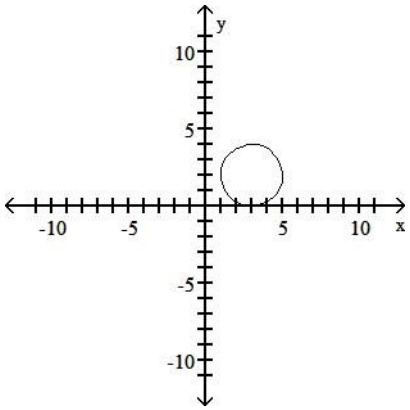


84) $(x - 3)^2 + (y - 2)^2 = 4$ 84) _____



A)



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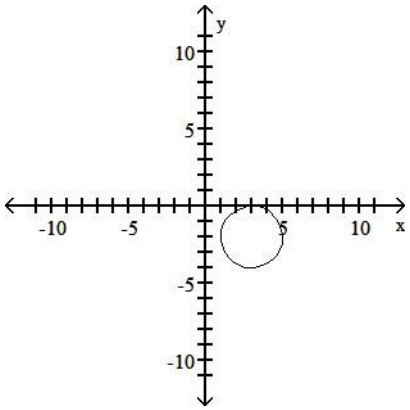
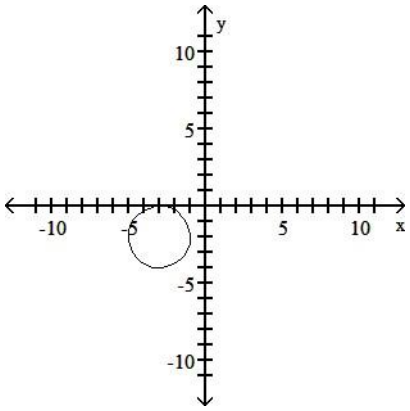


C)



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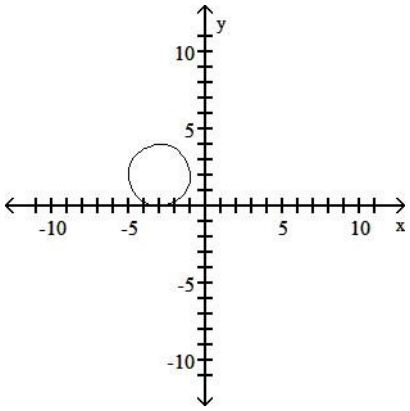
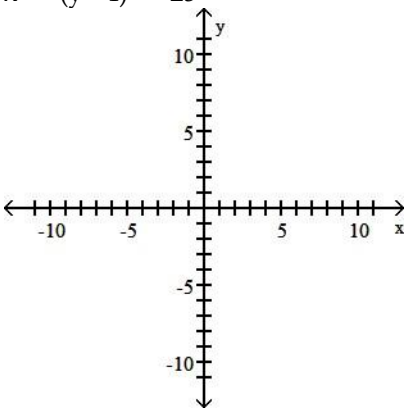
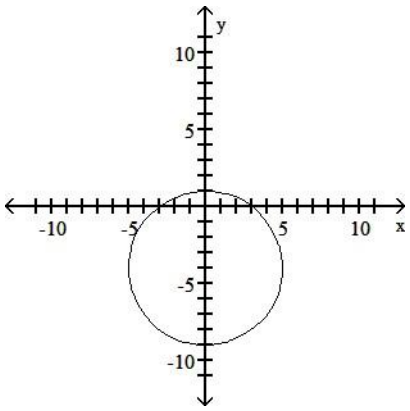


85) $x^2 + (y - 4)^2 = 25$ 85) _____



A)



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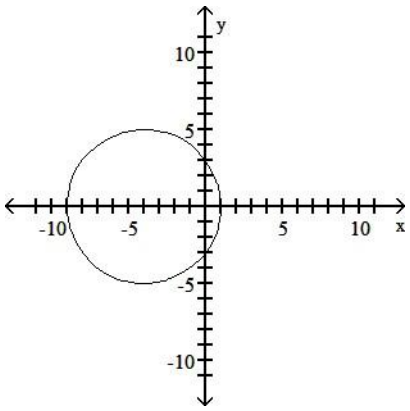
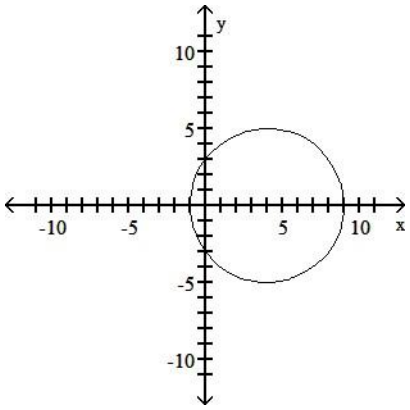


C)



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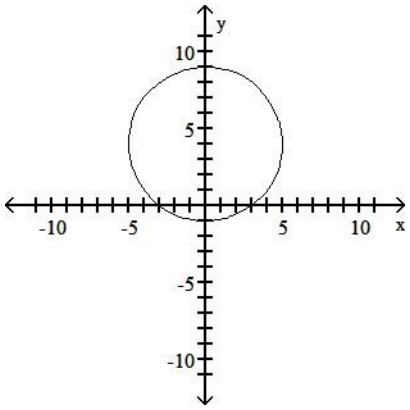
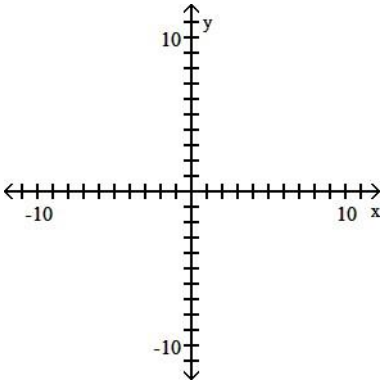
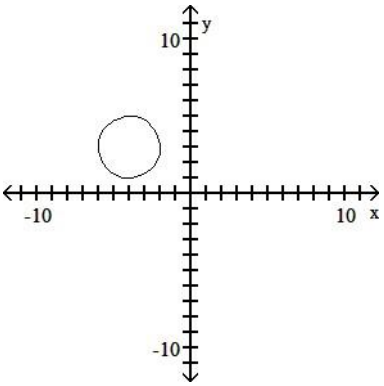


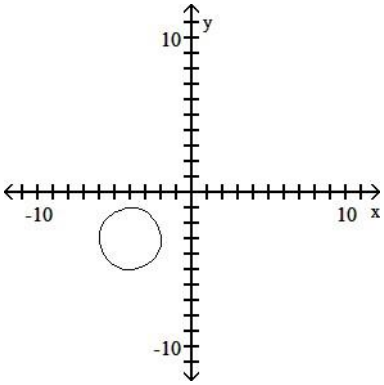
86) $(x - 4)^2 + (y + 3)^2 = 4$ 86) _____



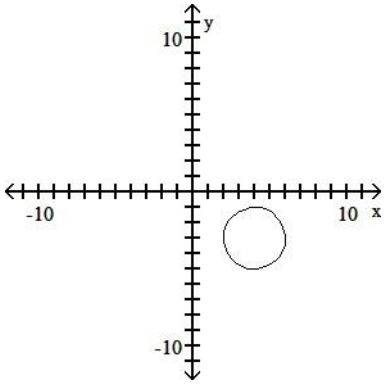
A)



B)



C)



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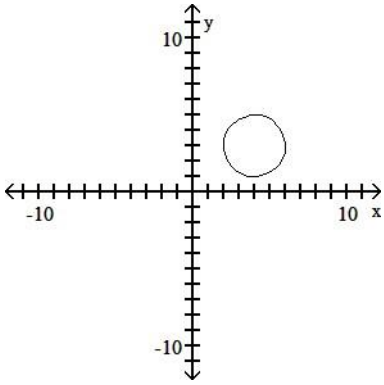
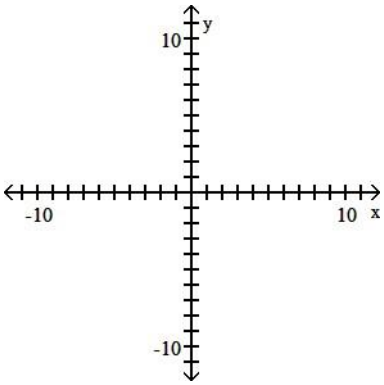
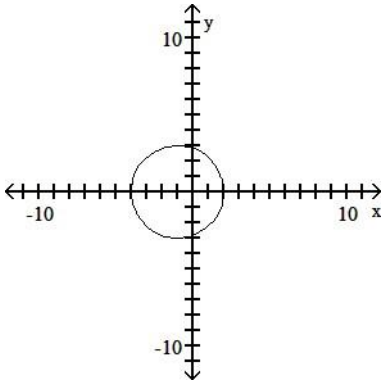


87) $(x - 1)^2 + y^2 = 9$

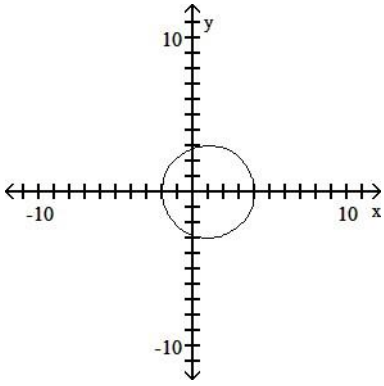
87) _____



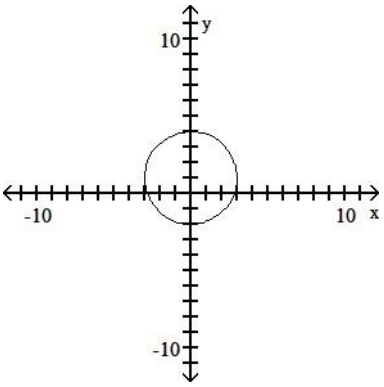
A)



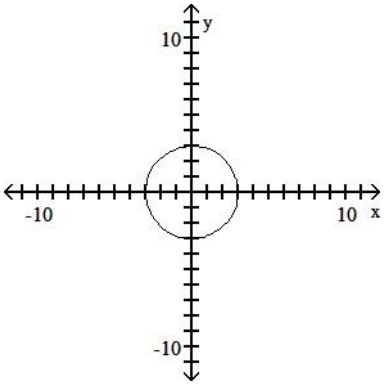
B)



C)

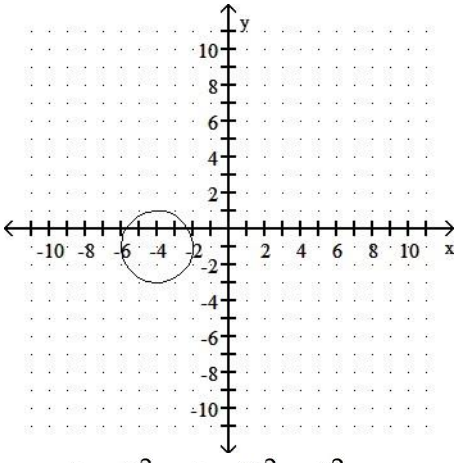


D)



Find the equation of the circle. Express the equation in standard form

88) 88) _____



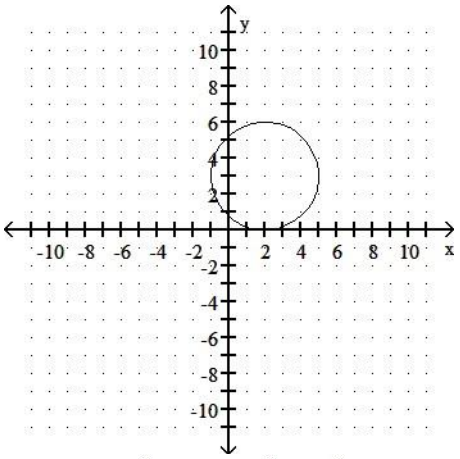
A) $(x - 4)^2 + (y - 1)^2 = 2^2$

B) $(x + 4)^2 + (y + 1)^2 = 2^2$

C) $(x - 4)^2 + (y + 1)^2 = 2^2$

D) $(x + 4)^2 + (y - 1)^2 = 2^2$

89) 89) _____



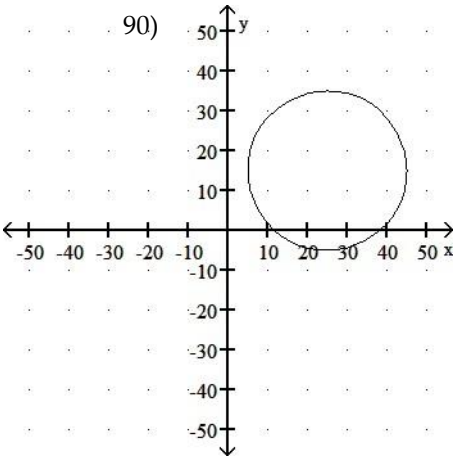
A) $(x + 2)^2 + (y - 3)^2 = 3^2$

B) $(x - 2)^2 + (y - 3)^2 = 3^2$

C) $(x + 2)^2 + (y + 3)^2 = 3^2$

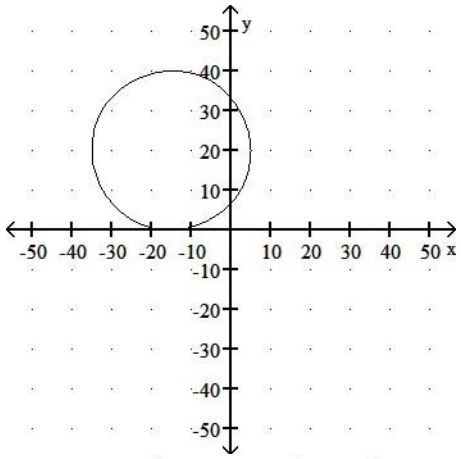
D) $(x - 2)^2 + (y + 3)^2 = 3^2$

90)

90) 

___
___

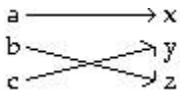
A) $(x + 25)^2 + (y + 15)^2 = -5^2$
B) $(x + 15)^2 + (y + 25)^2 = 20^2$
C) $(x + 15)^2 + (y - 25)^2 = 20^2$
D) $(x - 25)^2 + (y - 15)^2 = 20^2$

91) 

91) _____

A) $(x + 15)^2 + (y + 20)^2 = 20^2$
B) $(x + 20)^2 + (y - 15)^2 = 20^2$
C) $(x + 20)^2 + (y + 15)^2 = 20^2$
D) $(x + 15)^2 + (y - 20)^2 = 20^2$

Is the following correspondence a function?

92) 

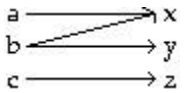
92) _____

A) Yes
B) No

93) 

93) _____

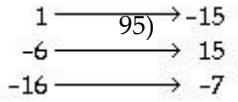
A) Yes
B) No

94) 

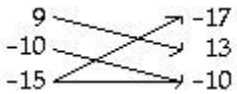
94) _____

A) Yes
B) No

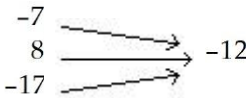
95)

95) 

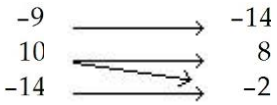
A) Yes B) No

96) 

A) Yes B) No

97) 

A) Yes B) No

98) 

A) Yes B) No

99) Domain: All students attending Laughlin Community College
Correspondence: Each student's Social Security Number
Range: A set of Social Security Numbers

A) Yes B) No

100) Domain: All students attending the University of Ohio
Correspondence: Each student's teachers
Range: A set of teachers

A) Yes B) No

101)

Name	Test Score
Bob L.	90
Susan H.	83
Jim H.	76
Bruce B.	96

A) Yes B) No

Tell whether or not the relation is a function.

102) {(1,2), (3,8), (5,-5), (7,-3), (10,5)}

A) Yes B) No

103) {(-4,9), (-2,-3), (3,-6), (3,-6)}

A) Yes B) No

104) {(-9,-4), (-9,6), (1,-6), (4,-3), (9,5)}

A) Yes B) No

105) {(3,-3), (3,-7), (6,8), (7,9), (10,-9)}

A) Yes B) No

106) {(-5,8), (-3,-3), (-1,-6), (8,-7)} 106) _____
A) Yes B) No

107) {(-8,2), (-8,9), (-1,7), (4,7), (7,3)} 107) _____
A) Yes B) No

108) {(-6,-5), (-5,5), (-1,9), (2,-1)} 108) _____
A) Yes B) No

109) {(-4,-3), (-2,3), (4,5), (4,-2)} 109) _____
A) Yes B) No

110) {(-3,-2), (-2,-9), (3,4), (7,4)} 110) _____
A) Yes B) No

111) {(-3,-9), (2,-9), (4,-7), (8,-4), (11,-6)} 111) _____
A) Yes B) No

Determine the domain and range of the relation.

112) {(-6, -1), (4, 4), (8, 3), (10, 5), (12, 7)} 112) _____
A) Domain: {4, -1, 12, 4, 10}; Range: {3, -6, 5, 8, 7}
B) Domain: {3, -6, 5, 8, 7}; Range: {4, -1, 12, 4, 10}
C) Domain: {4, 12, 10, -6, 8}; Range: {-1, 4, 3, 5, 7}
D) Domain: {-1, 4, 3, 5, 7}; Range: {4, 12, 10, -6, 8}

113) {(-7, -3), (-2, -7), (8, -1), (8, 1)} 113) _____
A) Domain: {-7, 8, -2, -8}; Range: {-3, -1, -7, 1}
B) Domain: {-7, 8, -2, 8};Range: {-3, -1, -7, 1}
C) Domain: {-7, 8, -2}; Range: {-3, -1, -7, 1}
D) Domain: {-3, -1, -7, 1}; Range: {-7, 8, -2}

114) {(-9, 7), (-9, -4), (7, 6), (5, 9), (-7, 5)} 114) _____
A) Domain: {-9, 7, -7, 5}; Range: {-4, 6, 5, 9, 7}
B) Domain: {-9, -9, 7, -7, 5}; Range: {-4, 6, 5, 9, 7}
C) Domain: {-9, 9, 7, -7, 5}; Range: {-4, 6, 5, 9, 7}
D) Domain: {-4, 6, 5, 9, 7}; Range: {-9, -9, 7, -7, 5}

115) {(1, 4), (-5, 3), (12, 6), (12, 8)} 115) _____
A) Domain: {4, 3, 6, 8}; Range: {1, -5, 12}
B) Domain: {1, -5, 12}; Range: {4, 3, 6, 8}
C) Domain: {1, -5, 12, 12}; Range: {4, 3, 6, 8}
D) Domain: {1, -5, 12, -12}; Range: {4, 3, 6, 8}

116) {(-9, -9), (4, 7), (-1, 2), (7, -5)} 116) _____
A) Domain: {7, -1, 4, -9}; Range: {-5, -1, 2, 7, -9}
B) Domain: {7, -1, 4, -9}; Range: {-5, 2, 7, -9}
C) Domain = {7, -1, 4, -9}; Range: {-5, -5, 2, 7, -9}
D) Domain: {-5, 2, 7, -9}; Range: {7, -1, 4, -9}

Evaluate as requested.

117) Given that $f(x) = x^2 + 5x + 4$, find f(-2). 117) _____

A) -10 B) 18 C) 10 D) -2

118) Given that $f(x) = 4^{x^2} - 5x + 4$, find f(-x). 118) _____

A) $4^{x^2} + 5x + 4$ B) $-4^{x^2} + 5x - 4$ C) $-4^{x^2} + 6x + 4$ D) $3^{x^2} + 6x + 3$

119) Given that $g(x) = 2^{x^3}$, find g(6 + h). 119) _____

A) $216 + 108h + 36^{h^2} + 3h^3$ B) $-432 + 216h - 6^{h^2} + h^3$

C) $432 + 216h + 36^{h^2} + 2h^3$ D) $432 - 216h + 24^{h^2} - 2h^3$

120) Given that $f(x) = 2^{|x|} + 4x$, find f(3y). 120) _____

A) $6|y| + 12y$ B) $5|y| + 14y$ C) $3|y| + 3y$ D) $2|y| + 4y$

121) Given that $f(x) = \frac{x}{11 - x}$, find $f\left(-\frac{4}{5}\right)$. 121) _____

A) $-\frac{4}{59}$ B) $\frac{59}{4}$ C) $-\frac{59}{4}$ D) $\frac{4}{59}$

122) Given that $g(x) = \frac{x - 3}{x + 4}$, find g(-13.25). 122) _____

A) $-\frac{41}{69}$ B) $\frac{65}{37}$ C) $\frac{41}{69}$ D) 1

123) Given that $g(x) = \frac{x}{\sqrt{1 - x^2}}$, find g(-1). 123) _____

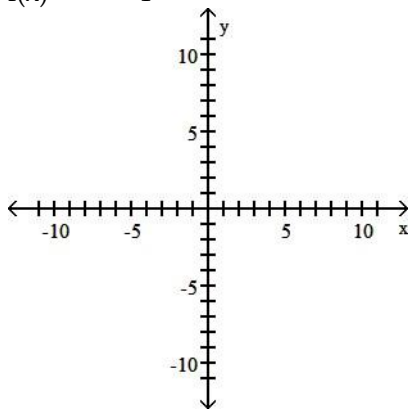
A) 0 B) does not exist C) 1 D) 3

124) Given that $h(x) = 3x - \sqrt{x^2 - 3}$, find h(-x). 124) _____

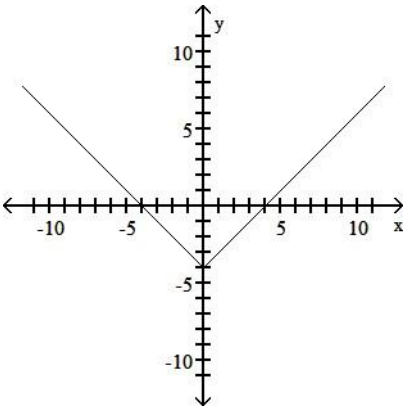
A) $-3x - \sqrt{3 - x^2}$ B) $3x - \sqrt{x^2 - 3}$ C) $-3x + \sqrt{x^2 - 3}$ D) $-3x - \sqrt{x^2 - 3}$

Graph the function.

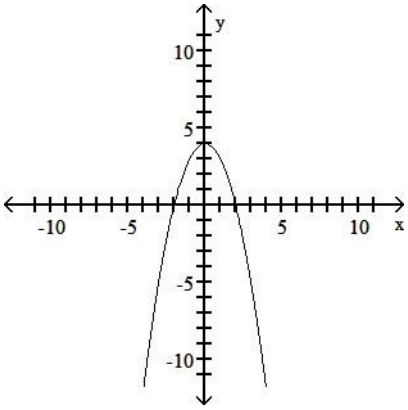
125) $f(x) = x^2 - 4$ 125) _____



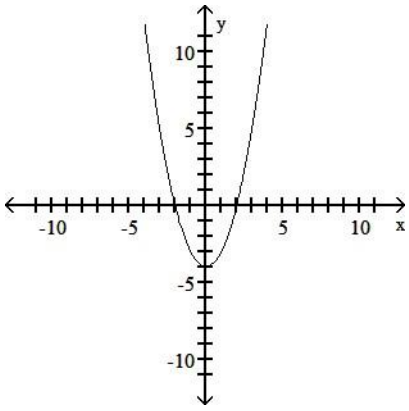
A)



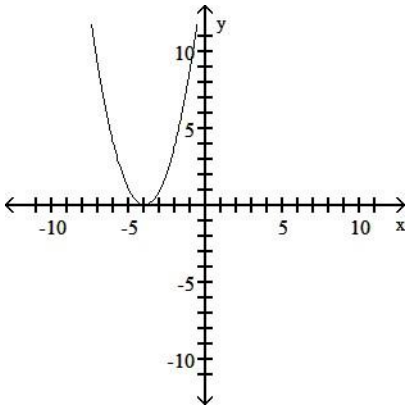
B)



C)

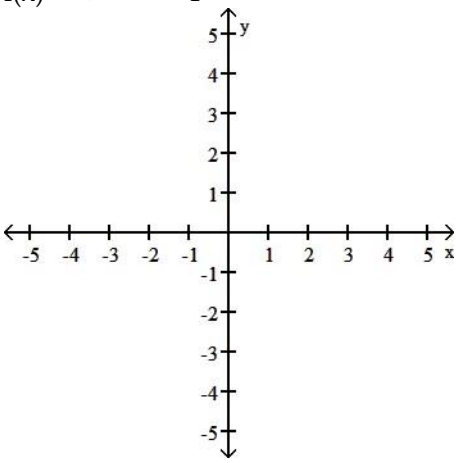


D)

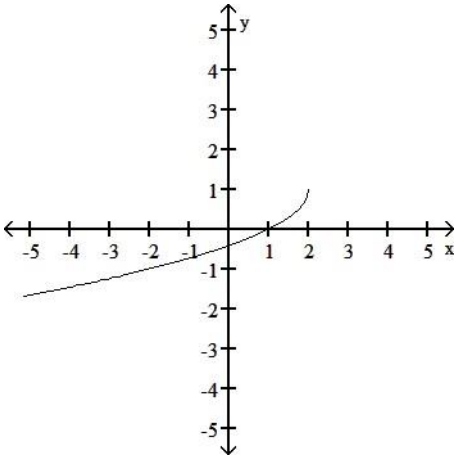


126) $f(x) = \sqrt{x + 2} + 1$

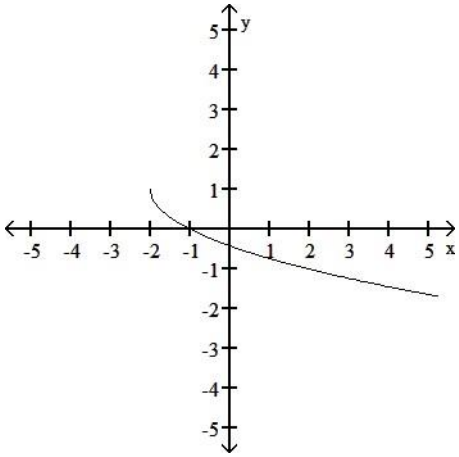
126) _____



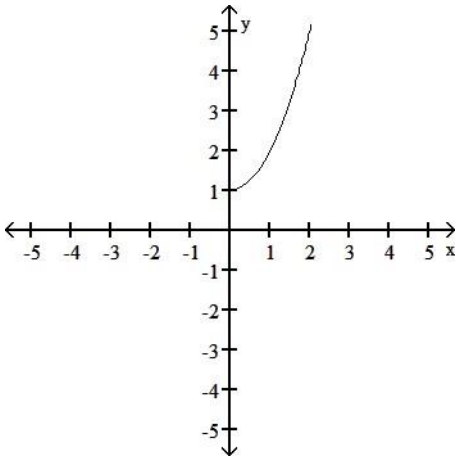
A)



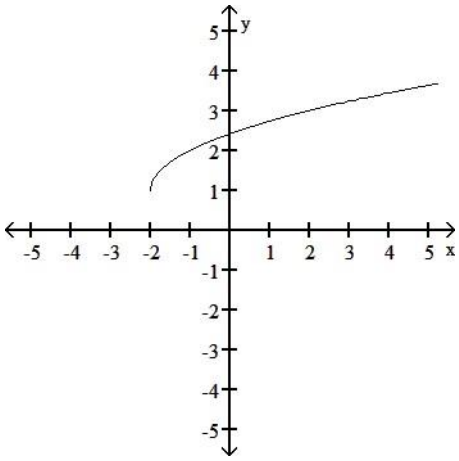
B)



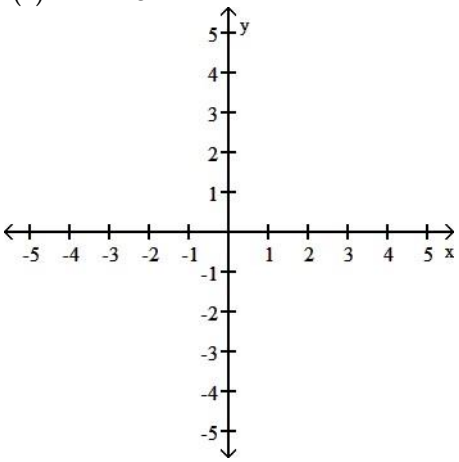
C)



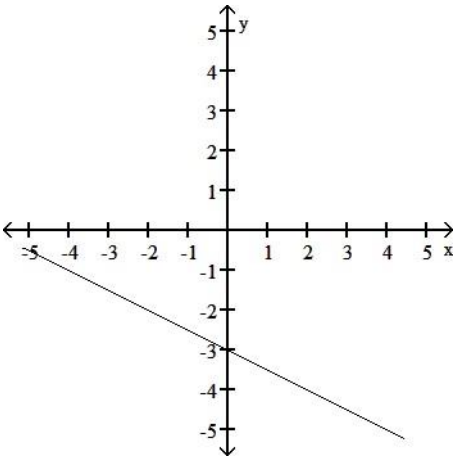
D)



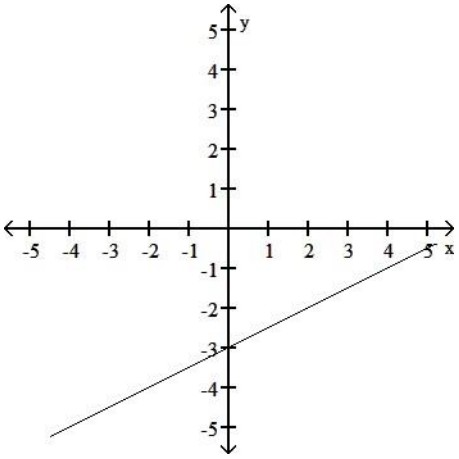
127) $f(x) = \frac{1}{2}x - 3$ 127) _____



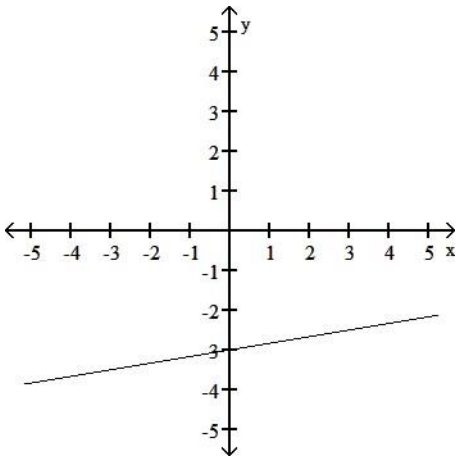
A)



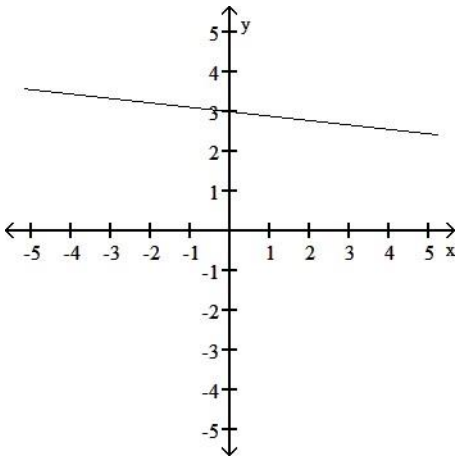
B)



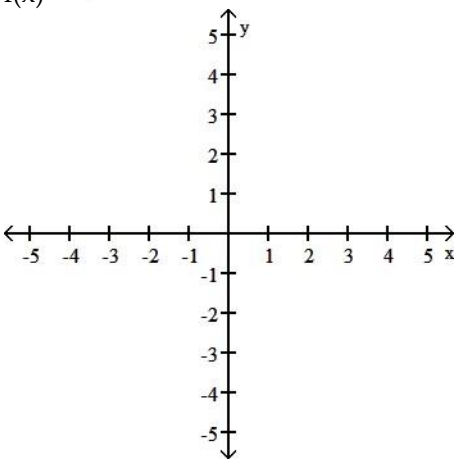
C)



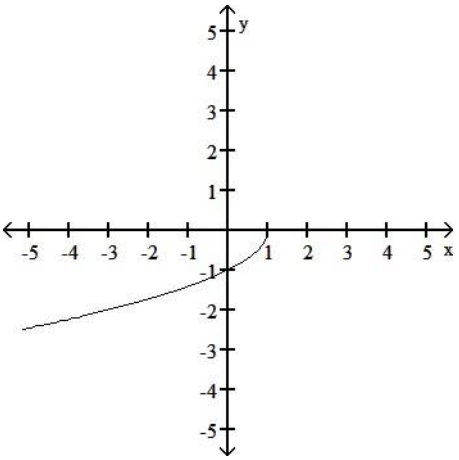
D)



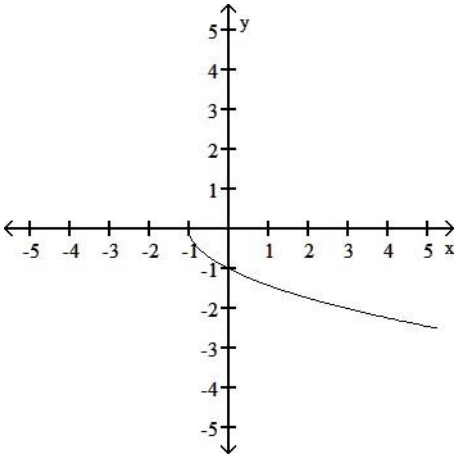
128) $f(x) = \sqrt{x + 1}$ 128) _____



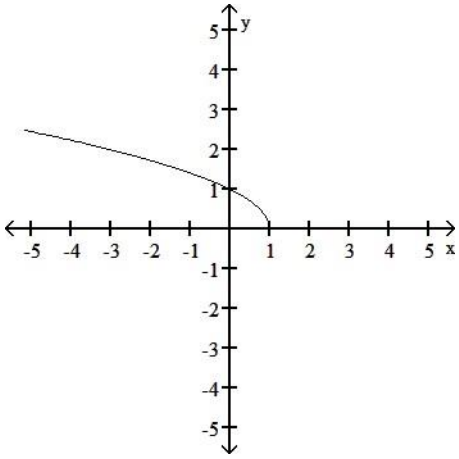
A)



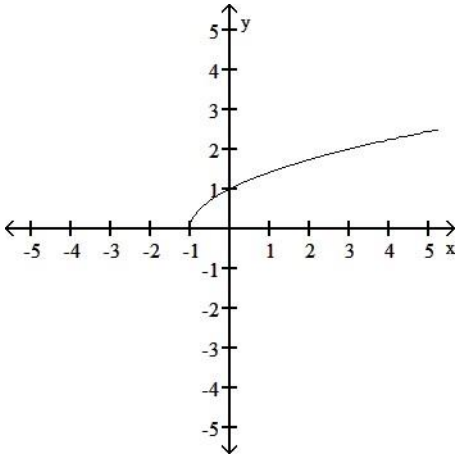
B)



C)

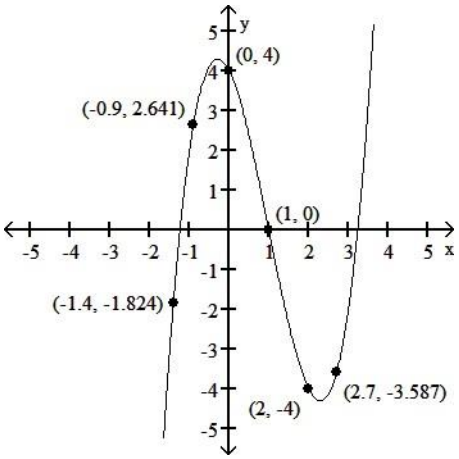


D)



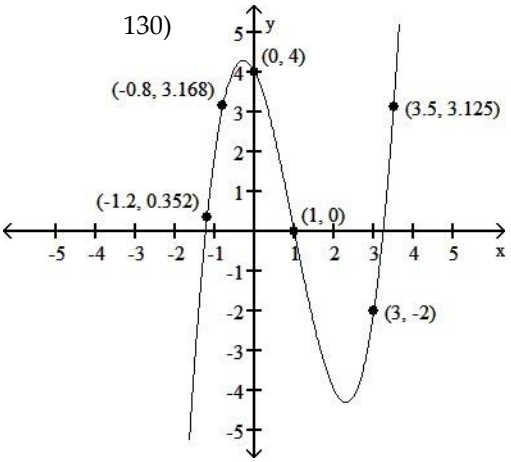
Evaluate as requested.

129) A graph of a function f is shown below. Find f(1). 129) _____



A) 0 B) 2.1 C) -1.34 D) 1

130) A graph of a function g is shown below. Find g(1).

130) 

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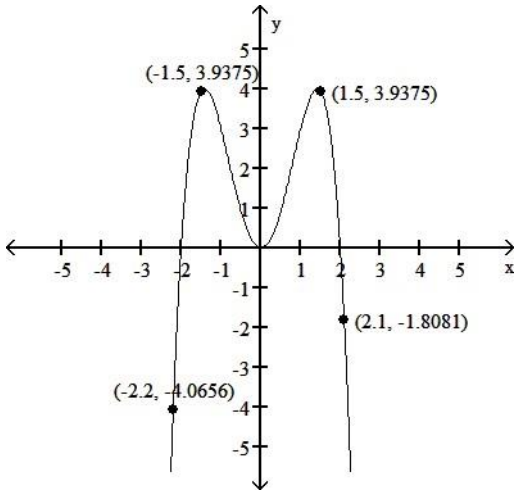
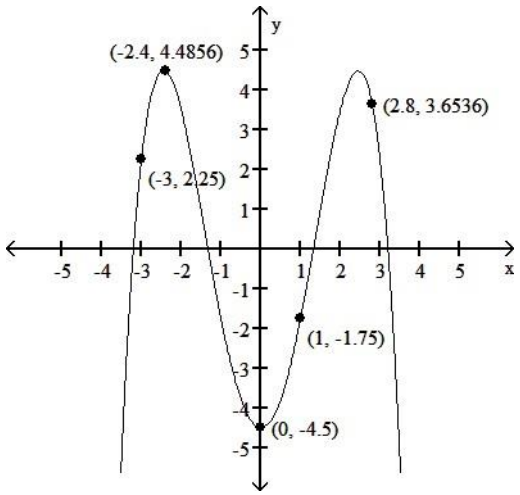
A) 4.238 B) -2.5 C) 3 D) 0

131) A graph of a function g is shown below. Find g(-1.5). 131) _____



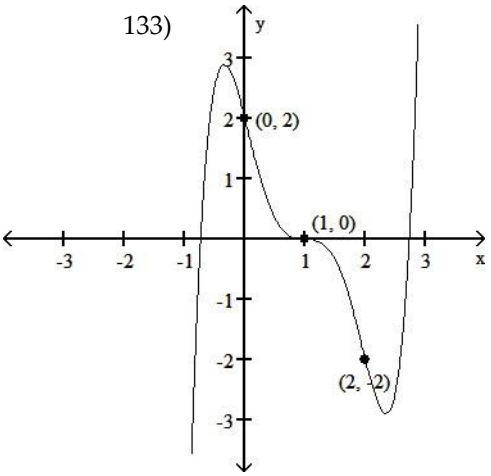
A) 2.1 B) 3.9375 C) -1.8081 D) 1.5

132) A graph of a function g is shown below. Find g(-2.4). 132) _____



A) 1 B) 4.4856 C) -1.75 D) 2.4

133) A graph of a function f is shown below. Find f(0).

133) 

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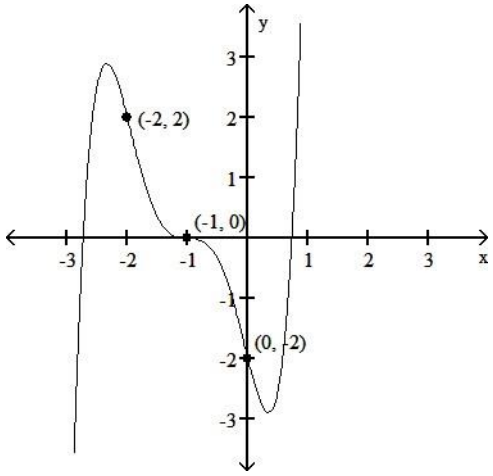
A) -2 B) -1 C) 2 D) 1

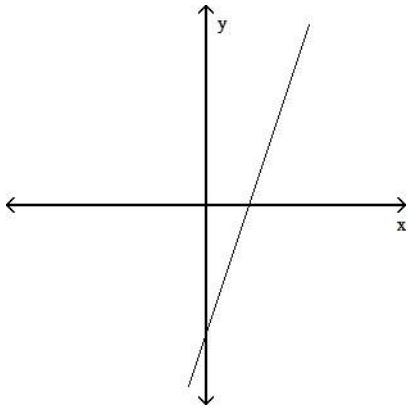
134) A graph of a function g is shown below. Find g(-1). 134) _____



A) 0 B) 2 C) 1 D) -2

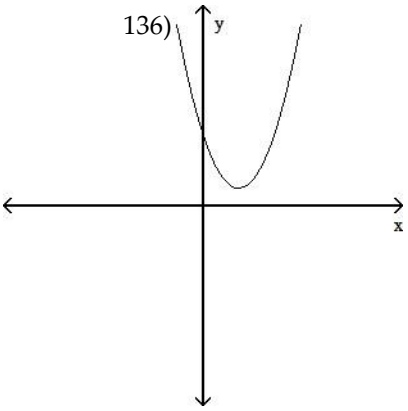
Determine whether the graph is the graph of a function.

135) 135) _____



A) Yes B) No

136)

136) 

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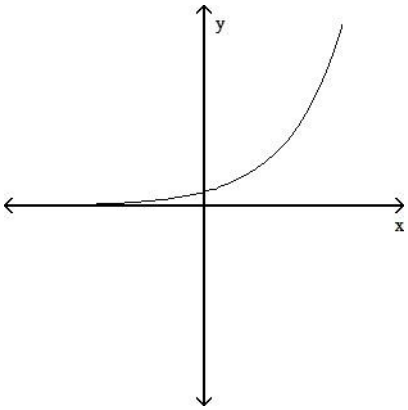
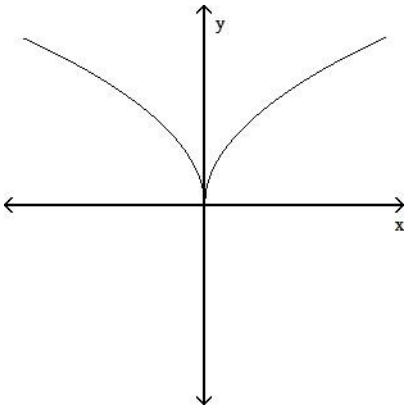
A) Yes B) No

137) 

137) _____

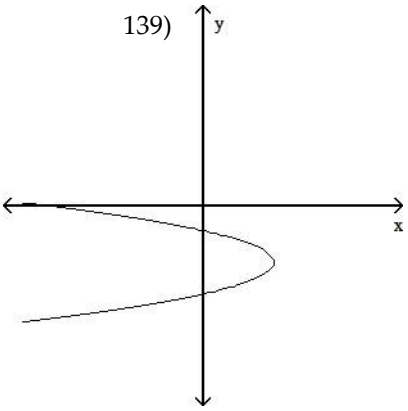
A) Yes B) No

138) 

138) _____

A) Yes B) No

139)

139) 

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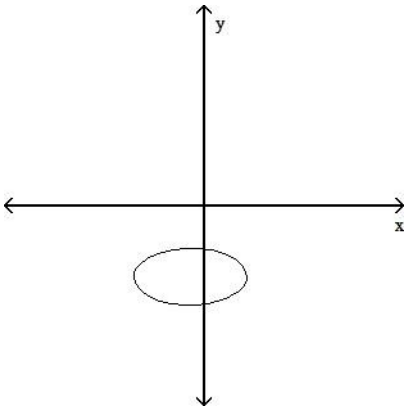
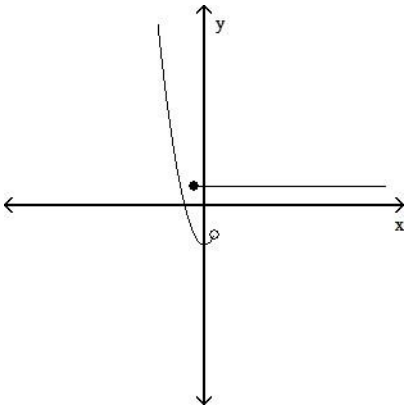
A) Yes B) No

140) 

140) _____

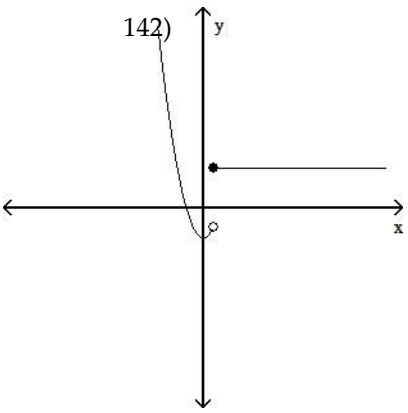
A) Yes B) No

141) 

141) _____

A) Yes B) No

142)

142) 

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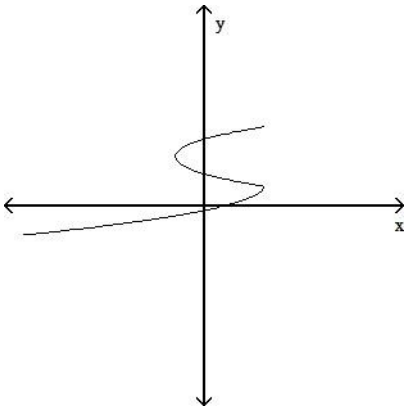
A) Yes B) No

143) 

143) _____

A) Yes B) No

Find the domain of the function.

144) f(x) = -6x + 4 144) _____

A) {x | x > 0}, or (0, ∞) B) {x | x ≠ 0}, or (-∞, 0) ∪ (0, ∞)

C) {x | x > -4}, or (-4, ∞) D) all real numbers, or (-∞, ∞)

145) $f(x) = \frac{x}{x - 9}$ 145) _____

A) {x | x ≠ -9}, or (-∞, -9) ∪ (-9, ∞) B) {x | x > 0}, or (0, ∞)

C) {x | x ≠ 9}, or (-∞, 9) ∪ (9, ∞) D) {x | x < 0}, or (-∞, 0)

146) f(x) = | 4x − 5 | 146) _____

A) $\left\{x \mid x \neq \frac{5}{4}\right\}$, or $\left(-\infty, \frac{5}{4}\right) \cup \left(\frac{5}{4}, \infty\right)$ B) $\left\{x \mid x > \frac{5}{4}\right\}$, or $\left(\frac{5}{4}, \infty\right)$

C) $\left\{x \mid x < \frac{5}{4}\right\}$, or $\left(-\infty, \frac{5}{4}\right)$ D) all real numbers, or (-∞,∞)

147) $f(x) = 5 - \frac{4}{x}$ 147) _____

A) {x | x < 4}, or (-∞, 4) B) {x | x ≠ 0}, or (-∞, 0) ∪ (0, ∞)

C) {x | x > 5}, or (5, ∞) D) all real numbers, or(-∞, ∞)

148) $f(x) = \frac{4}{x^2}$

148) _____

A) $\{x \mid x \neq 0\}$, or $(-\infty, 0) \cup (0, \infty)$
B) $\{x \mid x > 4\}$, or $(4, \infty)$
C) $\{x \mid x < 2\}$, or $(-\infty, 2)$
D) all real numbers, or $(-\infty, \infty)$

149) $f(x) = \dfrac{4}{x + 9}$ 149) _____

A) $\{x \mid x < 9\}$, or $(-\infty, 9)$
B) all real numbers, or $(-\infty, \infty)$
C) $\{x \mid x \neq 0\}$, or $(-\infty, 0) \cup (0, \infty)$
D) $\{x \mid x \neq -9\}$, or $(-\infty, -9) \cup (-9, \infty)$

150) $f(x) = \dfrac{1}{x^2 + 6x - 16}$ 150) _____

A) all real numbers, or $(-\infty, \infty)$
B) $\{x \mid x \neq 2\}$, or $(-\infty, 2) \cup (2, \infty)$
C) $\{x \mid x \neq -8 \text{ and } x \neq 2\}$, or $(-\infty, -8) \cup (-8, 2) \cup (2, \infty)$
D) $\{x \mid x \neq -8\}$, or $(-\infty, -8) \cup (-8, \infty)$

151) $f(x) = \dfrac{x^4 - 3x^3 + 4}{3x^2 - 10x - 48}$ 151) _____

A) $\{x \mid x \neq 6\}$, or $(-\infty, 6) \cup (6, \infty)$
B) $\left\{x \mid x \neq -\dfrac{8}{3}\right\}$, or $\left(-\infty, -\dfrac{8}{3}\right) \cup \left(-\dfrac{8}{3}, \infty\right)$
C) $\left\{x \mid x \neq -\dfrac{8}{3} \text{ and } x \neq 6\right\}$, or $\left(-\infty, -\dfrac{8}{3}\right) \cup \left(-\dfrac{8}{3}, 6\right) \cup (6, \infty)$
D) $\left\{x \mid x \neq -6 \text{ and } x \neq \dfrac{8}{3}\right\}$, or $(-\infty, -6) \cup \left(-6, \dfrac{8}{3}\right) \cup \left(\dfrac{8}{3}, \infty\right)$

152) $f(x) = \sqrt{10 - x}$ 152) _____

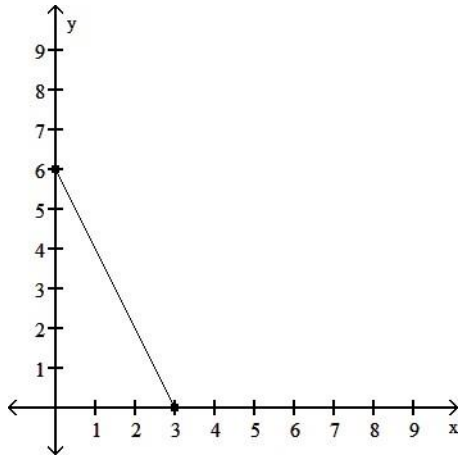
A) $\{x \mid x \leq 10\}$, or $(-\infty, 10]$
B) $\{x \mid x \neq 10\}$, or $(-\infty, 10) \cup (10, \infty)$
C) all real numbers, or $(-\infty, \infty)$
D) $\{x \mid x > \sqrt{10}\}$, or $(\sqrt{10}, \infty)$

153) $f(x) = x^2 + 5$ 153) _____

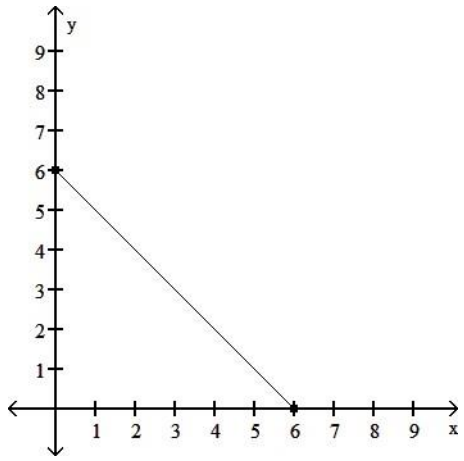
A) $\{x \mid x > -5\}$, or $(-5, \infty)$
B) $\{x \mid x \geq -5\}$, or $[-5, \infty)$
C) all real numbers, or $(-\infty, \infty)$
D) $\{x \mid x \neq -5\}$, or $(-\infty, -5) \cup (-5, \infty)$

Find the domain and range of the function represented in the graph.

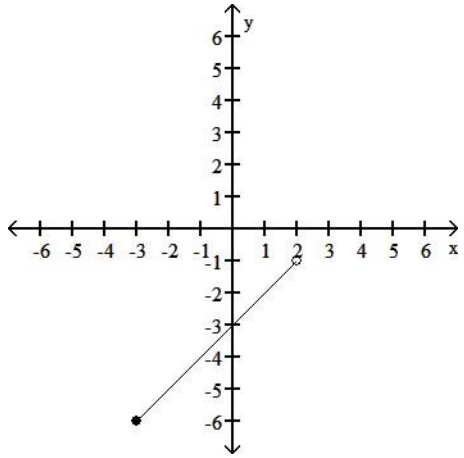
154) 154) _____



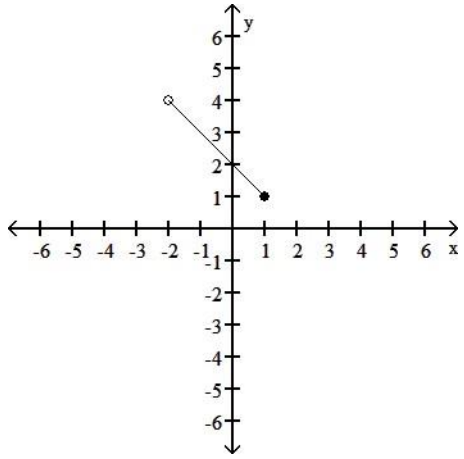
A) Domain: [0, 8]; Range: [0, 7]
B) Domain: (-∞, 3]; Range: [6, ∞]
C) Domain: [0, 3]; Range: [0, 6]
D) Domain: [0, 6]; Range: [0, 3]

155)  155) _____

A) Domain: [- 6, 0]; Range: [0, 6)
B) Domain: (0, 6]; Range: (- 6, ∞)
C) Domain: (0, 6); Range: (0, 6)
D) Domain: [0, 6]; Range: [0, 6]

156)  156) _____

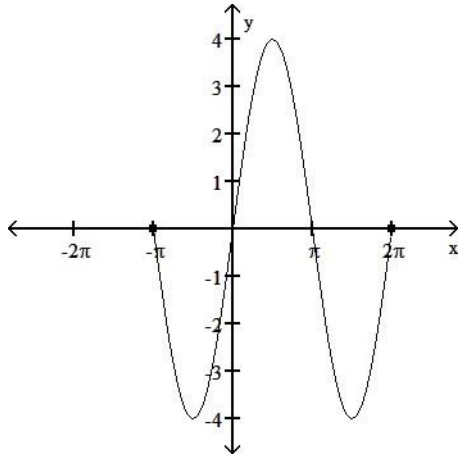
A) Domain: [-3, 2) ; Range: [-6, -1)
B) Domain: [-6, -1); Range: [-3, 2)
C) Domain: (-∞, 3]; Range: (2, ∞)
D) Domain: (-3, 2]; Range: (-6, -1]

157)  157) _____

A) Domain: [-2, 1]; Range: [1, 4]
B) Domain: (-2, 1]; Range: [1, 4)

C) Domain: [-2, 1); Range: [-1, 6)

D) Domain: (-1, 2]; Range: [2, 4)

158) 

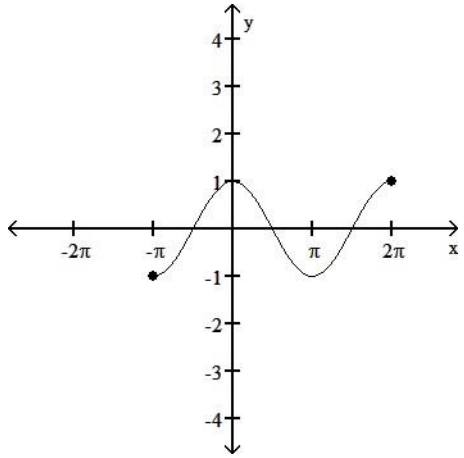
158) _____

A) Domain: [-4, 4]; Range: [-π, 2π]

B) Domain: [0, 2π]; Range: [0, 4]

C) Domain: [π, 2π]; Range: [-5, 3]

D) Domain: [-π, 2π]; Range: [- 4, 4]

159) 

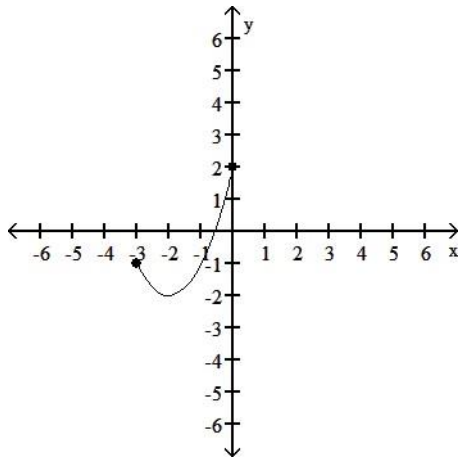
159) _____

A) Domain: [- 1, 1]; Range: [-π, 2π]

B) Domain: [-π, 2π]; Range: [- 1, 1]

C) Domain: [-π, 2π]; Range: [0, 1]

D) Domain: [-2π, 2π]; Range: [-4, 4]

160) 

160) _____

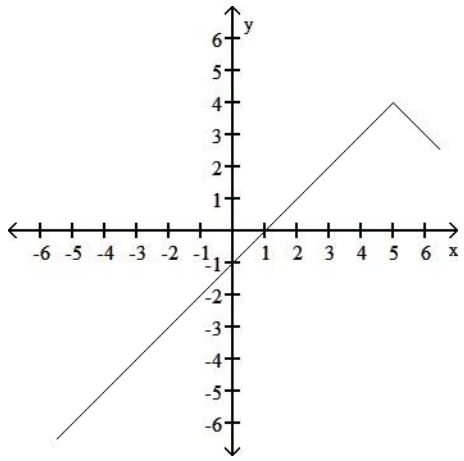
A) Domain: (-∞, 2]; Range: [0, 3]

B) Domain: [- 2, 2]; Range: [-3, 0]

C) Domain: [-3, 0]; Range: [- 2, 2]

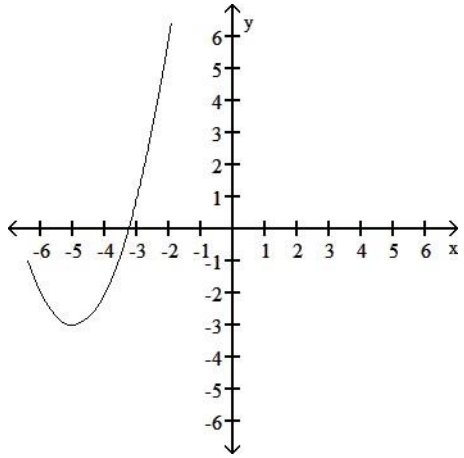
D) Domain: [0, 3]; Range: (-∞, 2]

161) 161) _____



A) Domain: (-∞, 5]; Range: (-∞, 4]
B) Domain: (-∞, ∞); Range: (-∞, ∞)
C) Domain: (-∞, 5) or (5, ∞); Range: (-∞, 4) or (4, ∞)
D) Domain: (-∞, ∞); Range: (-∞, 4]

162) 162) _____



A) Domain: (-∞, ∞); Range: [-3, ∞)
B) Domain: (-∞, -5) or (-5, ∞); Range: (-∞, -3) or (-3, ∞)
C) Domain: (-∞, ∞); Range: (-∞, ∞)
D) Domain: [-5, ∞); Range: [-3, ∞)

By graphing the function, visually estimate its domain and range.

163) f(x) = 6x + 3 163) _____

A) Domain: (-∞, ∞); range: (-∞, ∞)
B) Domain: [0, ∞) ; range: (-∞, ∞)
C) Domain: [0, ∞); range: [0, ∞)
D) Domain: (-∞, ∞)s ; range: [0, ∞)

164) h(x) = 9 - x 164) _____

A) Domain: (-∞, ∞); range = (0, ∞)
B) Domain: (-∞, ∞); range: (-∞, ∞)
C) Domain: (-∞, 0] ; range: (-∞, 0]
D) Domain: [0, ∞); range: [0, ∞)

165) $f(x) = \sqrt{x - 2}$ 165) _____

A) Domain: [2, ∞); range: (0, ∞)
B) Domain: [2, ∞); range: [2, ∞)
C) Domain: [0, ∞); range: [0, ∞)
D) Domain: [0, ∞); range = [2, ∞)

166) $t(x) = \sqrt{3 - x}$ 166) _____

A) Domain: (-∞, 3]; range: (-∞, 3]
B) Domain: (-∞, 3]; range: [0, ∞)
C) Domain: [3, ∞); range: [3, ∞)
D) Domain: (-∞, ∞); range: (-∞, ∞)

167) $h(x) = |x| - 7$ 167) _____

A) Domain: (-∞, ∞); range: [- 7, ∞)
B) Domain: [7, ∞); range: [7, ∞)
C) Domain: (-∞, ∞); range: (-∞, ∞)
D) Domain: (-∞, 7]; range: (-∞, 7]

168) $g(x) = x^2 - 6$ 168) _____

A) Domain: [6, ∞); range: (-∞, ∞)
B) Domain: (-∞, ∞); range :[- 6, ∞)
C) Domain: [6, ∞); range: [6, ∞)
D) Domain: (-∞, ∞); range: (-∞, ∞)

169) $f(x) = \sqrt{x^2 - 36}$ 169) _____

A) Domain: (-∞, ∞); range: [0, ∞)
B) Domain: [-6, 6]; range: [0, ∞)
C) Domain: (-∞, -6] ∪ [6, ∞); range: [0, ∞)
D) Domain: (-∞, -6] ∪ [6, ∞); range: (-∞, ∞)

Solve the problem.

170) The function H described by H(x) = 2.75x + 71.48 can be used to estimate the height, in centimeters, of a woman whose humerus (the bone from the elbow to the shoulder) is x cm long. Estimate the height of a woman whose humerus is 32.2 cm long. 170) _____

A) 17.07 cm
B) 42.03 cm
C) 106.43 cm
D) 160.03 cm

171) The function H described by H(x) = 2.75x + 71.48 can be used to estimate the height, in centimeters, of a woman whose humerus (the bone from the elbow to the shoulder) is x cm long. Estimate the height of a woman whose humerus is 35.11 cm long. 171) _____

A) 39.12 cm
B) 25.0725 cm
C) 109.34 cm
D) 168.0325 cm

172) The function h described by $h(t) = -16t^2 + 33.1t + 124.26$ gives the height of a ball thrown upward with a speed of 33.1 feet per second from a 124.26 ft high window t seconds after it is thrown until it hits the ground. Find the height of the ball 1.5 seconds after it is thrown. 172) _____

A) 110.61 ft
B) 137.91 ft
C) 38.61 ft
D) 209.91 ft

173) Suppose the sales of a particular brand of appliance satisfy the relationship $S(x) = 160x + 200$, where S(x) represents the number of sales in year x, with $x = 0$ corresponding to 1982. In what year would the sales be 1640? 173) _____

A) 1991
B) 1993
C) 1990
D) 1994

174) The mathematical model $C = 200x + 30{,}000$ represents the cost in dollars a company has in manufacturing x items during a month. How many items were produced if costs reached $150,000? 174) _____

A) 600 items
B) 900 items
C) 450 items
D) 149,800 items

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

52) D
53) A
54) A
55) D
56) C
57) C
58) B
59) C
60) A
61) A
62) C
63) A
64) B
65) A
66) B
67) D
68) C
69) B
70) A
71) D
72) B
73) B
74) C
75) C
76) A
77) C
78) D
79) A
80) B
81) A
82) D
83) B
84) A
85) D
86) C
87) B
88) B
89) B
90) D
91) D
92) A
93) A
94) B
95) A
96) B
97) A
98) B
99) A
100) B
101) A
102) A
103) B

104) B
105) B
106) A
107) B
108) A
109) B
110) A
111) A
112) C
113) C
114) A
115) B
116) B
117) D
118) A
119) C
120) A
121) A
122) B
123) B
124) D
125) C
126) D
127) B
128) D
129) A
130) D
131) B
132) B
133) C
134) A
135) A
136) A
137) A
138) A
139) B
140) B
141) B
142) A
143) B
144) D
145) C
146) D
147) B
148) A
149) D
150) C
151) C
152) A
153) C
154) C
155) D

156) A
157) B
158) D
159) B
160) C
161) D
162) A
163) A
164) B
165) A
166) B
167) A
168) B
169) C
170) D
171) D
172) B
173) A
174) A