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SKU: 9780135189405-TEST-BANK

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

Name the quadrant in which the point is located.

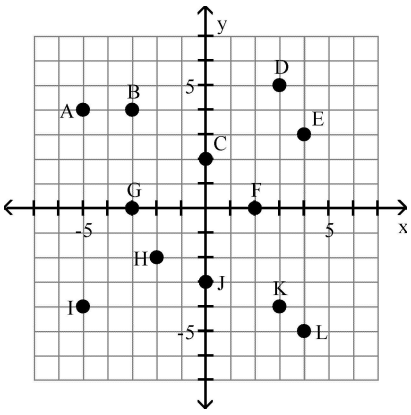
1) (19, 4)
A) I B) II C) III D) IV
Answer: A

2) (–3, 2)
A) I B) II C) III D) IV
Answer: B

3) (–2, –19)
A) I B) II C) III D) IV
Answer: C

4) (3, –14)
A) I B) II C) III D) IV
Answer: D

Identify the points in the graph for the ordered pairs.



5) (0, 2), (4, 3)
A) C and K B) F and E C) B and C D) C and E
Answer: D

6) (–5, –4), (0, –3)
A) G and I B) I and J C) A and J D) A and G
Answer: B

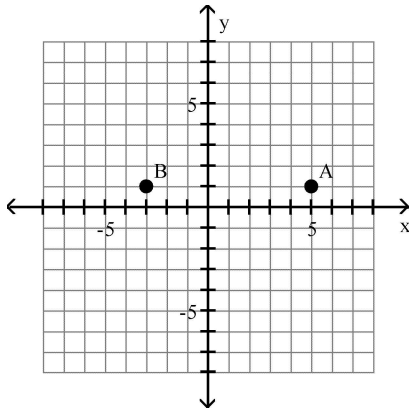
7) (–3, 4), (2, 0), (4, –5)
A) A, B, and F B) B, C, and L C) F, K, and L D) B, F, and L
Answer: D

8) (3, 5), (–3, 0)
A) D and G B) I and G C) D and J D) L and J
Answer: A

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Give the coordinates of the points shown on the graph.

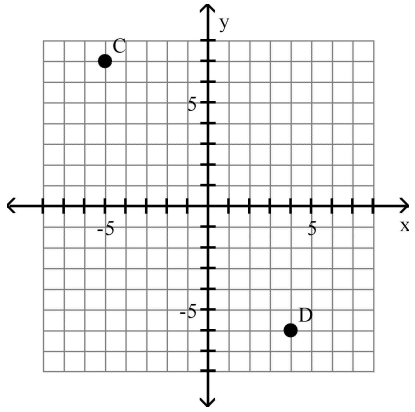
9)



A) A = (5, 1), B = (1, –3)
B) A = (5, 1), B = (1, 1)
C) A = (5, 1), B = (–3, 1)
D) A = (1, 26), B = (1, –3)

Answer: C

10)

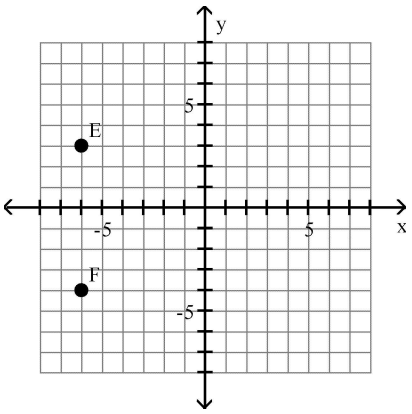


A) C = (–5, –6), D = (7, –6)
B) C = (–5, 7), D = (4, –6)
C) C = (7, –5), D = (–6, 4)
D) C = (–5, 7), D = (–6, 4)

Answer: B

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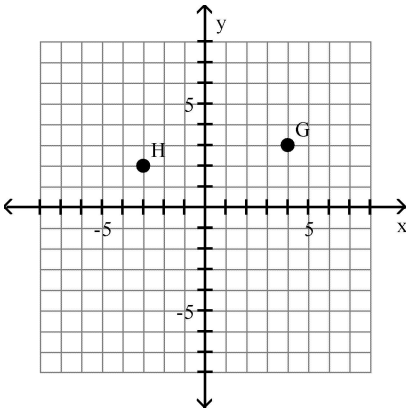
11)



A) E = (3, –6), F = (–4, –6)
B) E = (–6, 3), F = (–6, –4)
C) E = (–6, –4), F = (3, –4)
D) E = (–6, –4) , F = (–6, 3)

Answer: B

12)

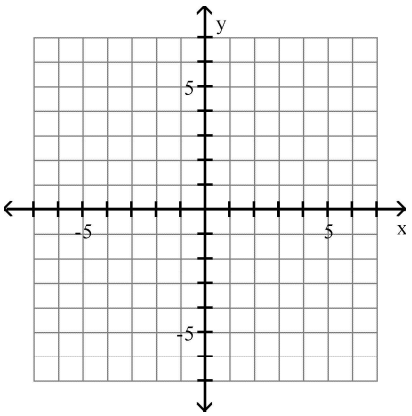


A) G = (4, 2), H = (3, 2)
B) G = (4, 3), H = (2, –3)
C) G = (4, 3), H = (–3, 2)
D) G = (3, 4), H = (2, –3)

Answer: C

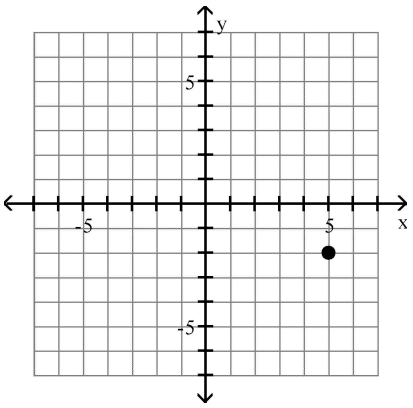
Plot the point in the xy–plane. Tell in which quadrant or on what axis the point lies.

13) (5, 2)



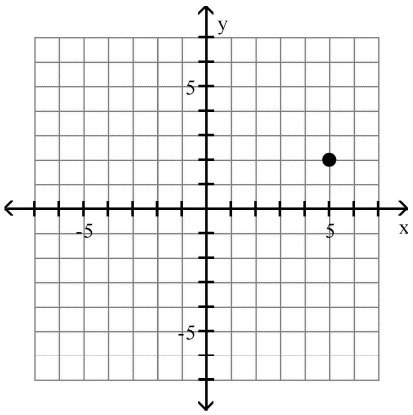
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A)



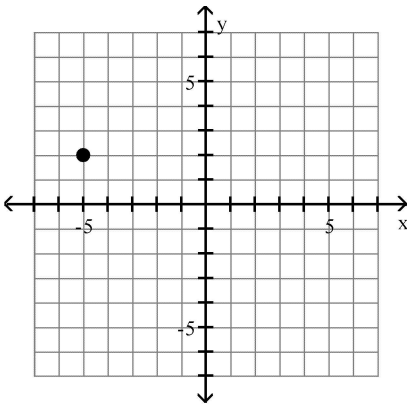
Quadrant IV

B)



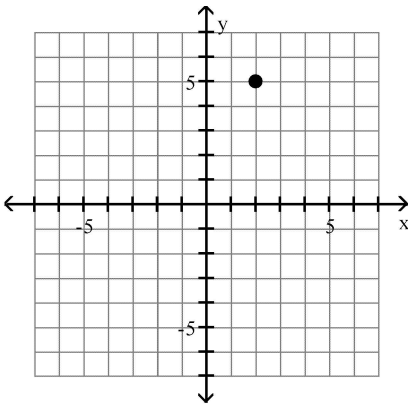
Quadrant I

C)



Quadrant II

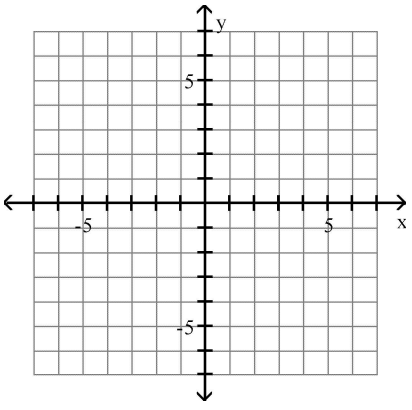
D)



Quadrant I

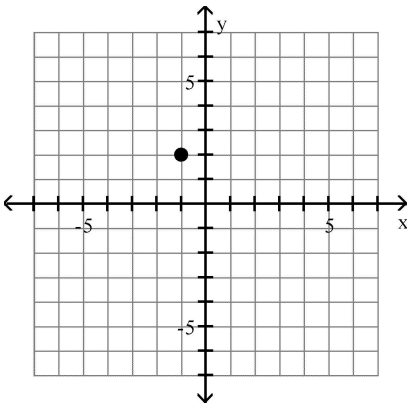
Answer: B

14) (–1, 2)



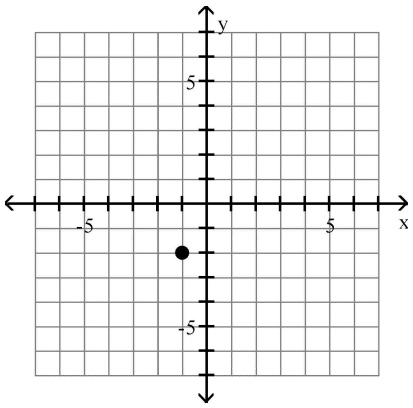
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A)



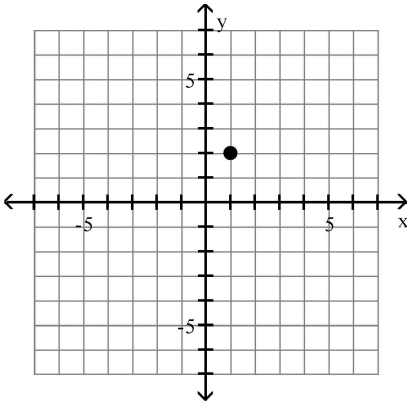
Quadrant II

B)



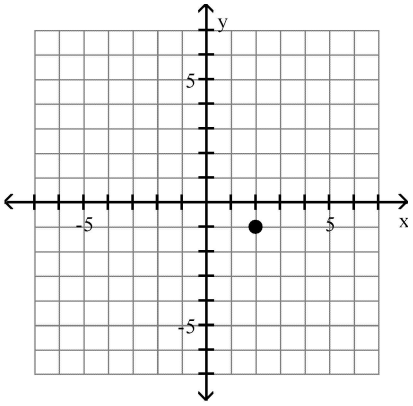
Quadrant III

C)



Quadrant I

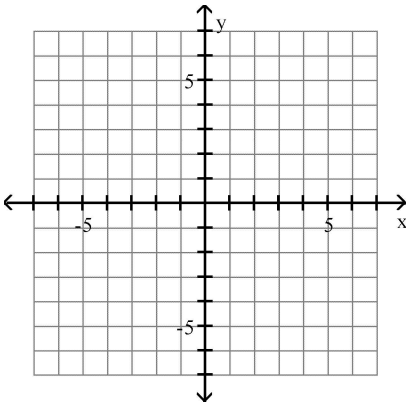
D)



Quadrant IV

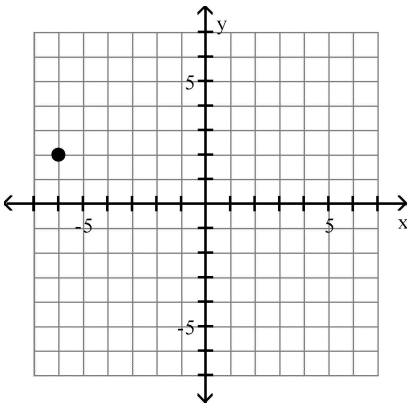
Answer: A

15) (2, –6)



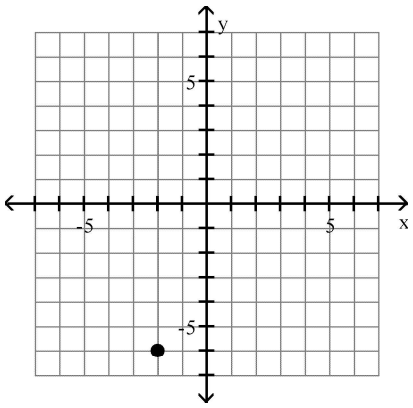
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A)



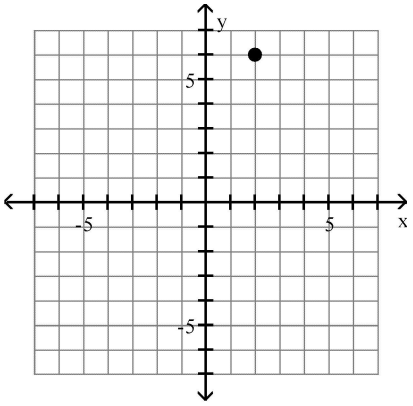
Quadrant II

B)



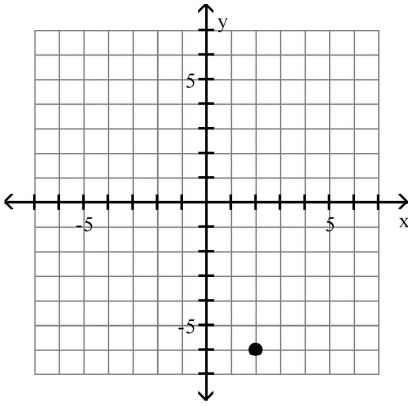
Quadrant III

C)



Quadrant I

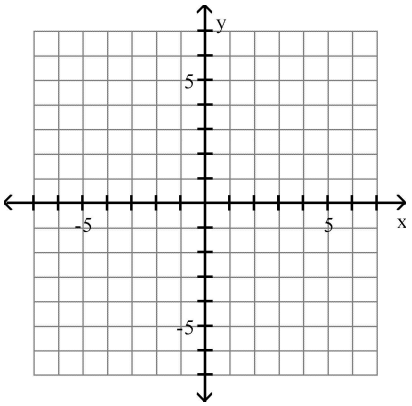
D)



Quadrant IV

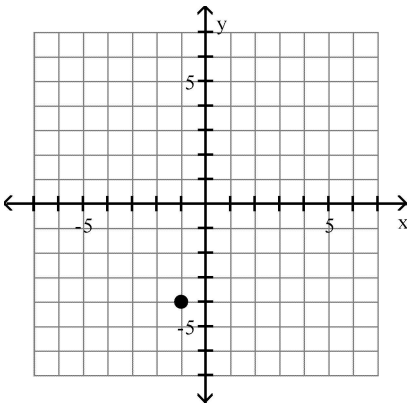
Answer: D

16) (–4, –1)



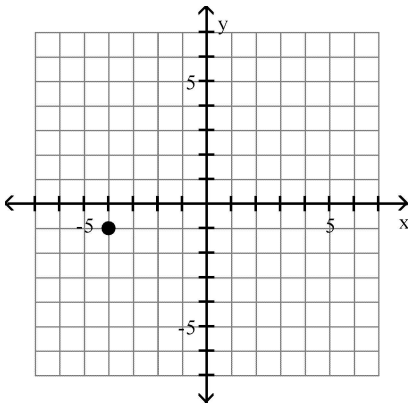
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A)



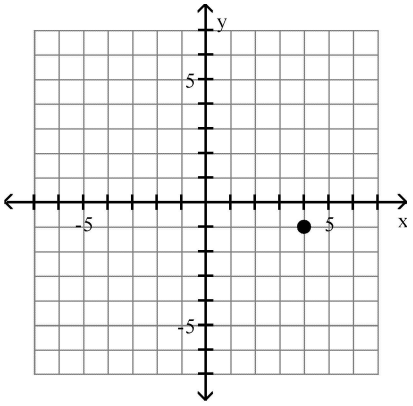
Quadrant III

B)



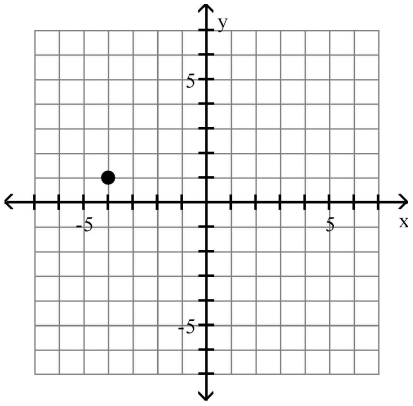
Quadrant III

C)



Quadrant IV

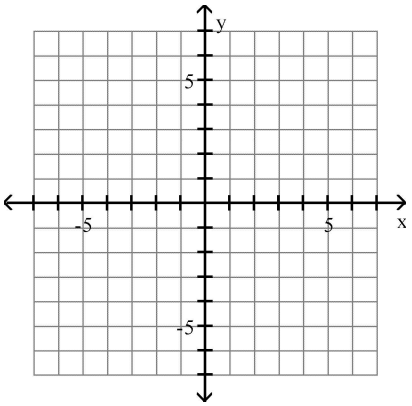
D)



Quadrant II

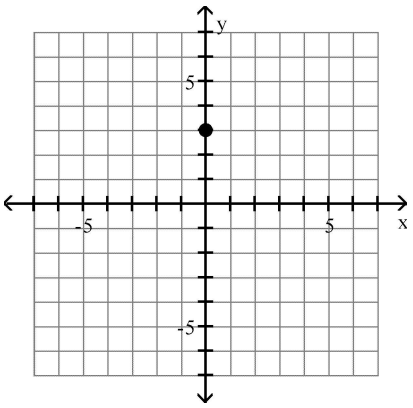
Answer: B

17) (0, –3)



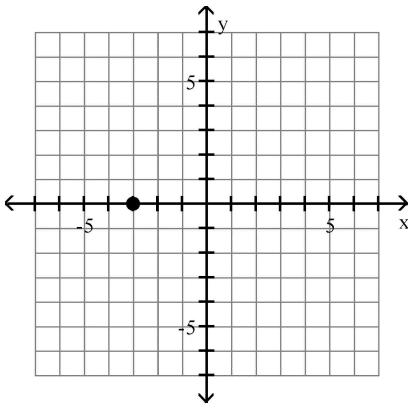
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A)



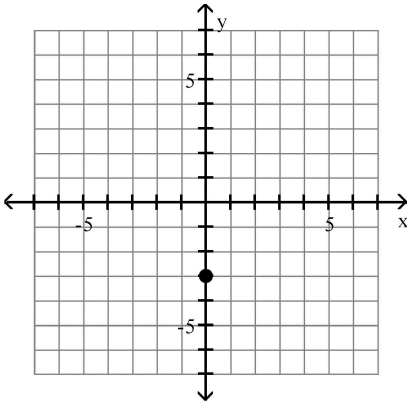
y–axis

B)



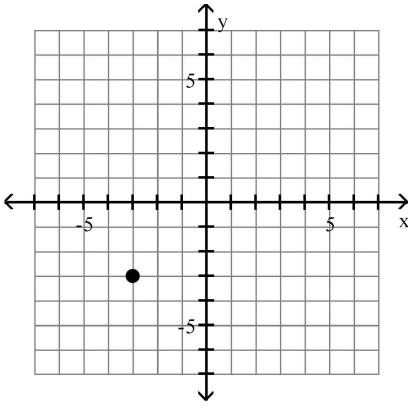
x–axis

C)



y–axis

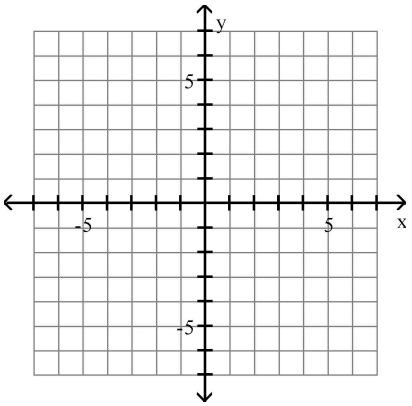
D)



Quadrant II

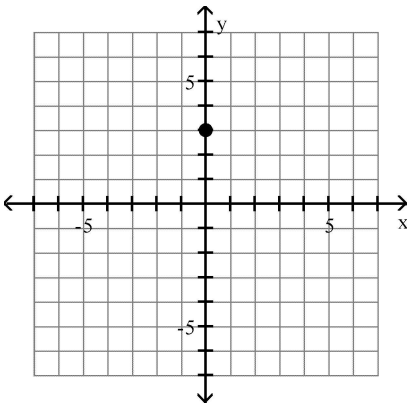
Answer: C

18) (3, 0)



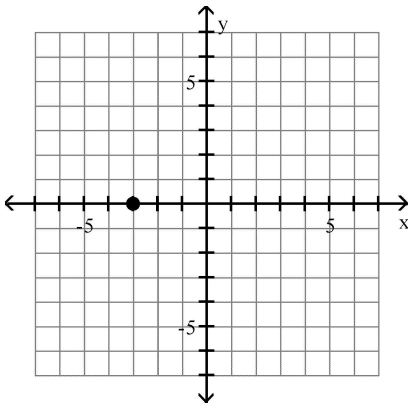
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A)



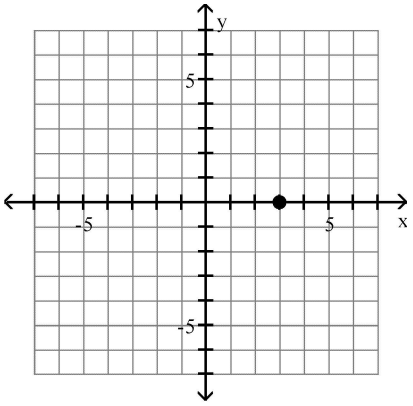
y–axis

B)



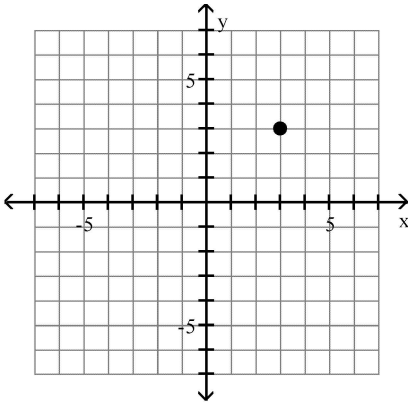
x–axis

C)



x–axis

D)

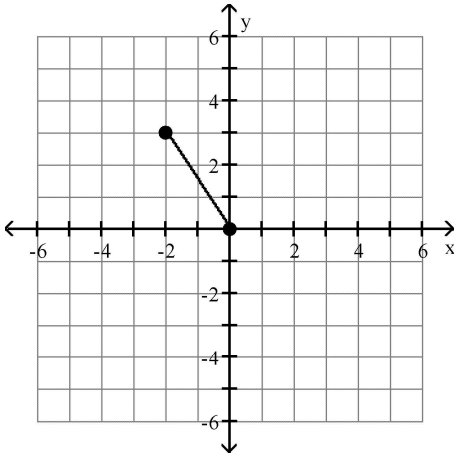


Quadrant II

Answer: C

Find the distance d(P_1, P_2) between the points P_1 and P_2.

19)

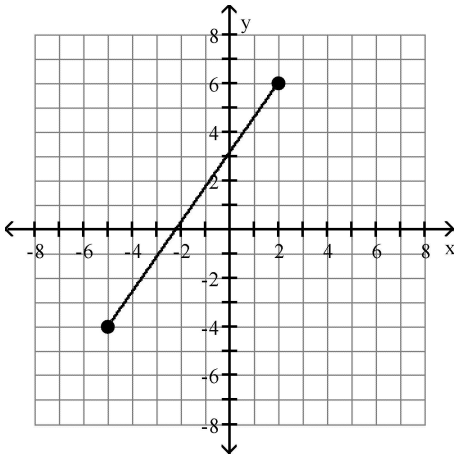


A) $\sqrt{5}$ B) $\sqrt{13}$ C) 4 D) 6

Answer: B

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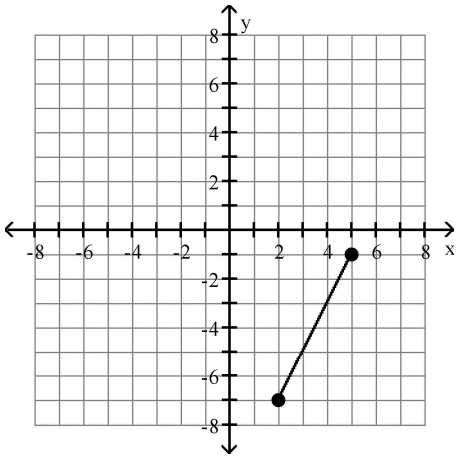
20)



A) 70 B) 3 C) $\sqrt{51}$ D) $\sqrt{149}$

Answer: D

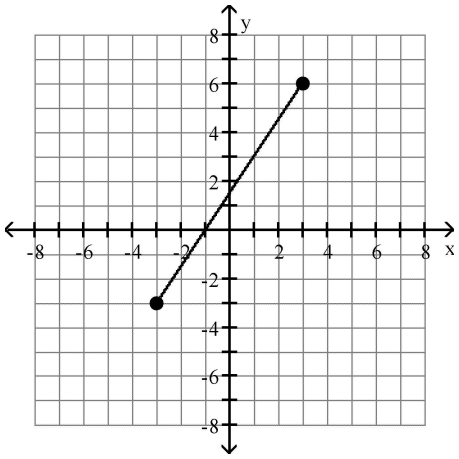
21)



A) $27\sqrt{3}$ B) 3 C) $3\sqrt{5}$ D) 27

Answer: C

22)



A) $45\sqrt{5}$ B) $3\sqrt{13}$ C) 45 D) 3

Answer: B

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23) $P_1 = (1, 1)$; $P_2 = (1, 3)$

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

Answer: D

24) $P_1 = (1, 5)$; $P_2 = (-4, -7)$

A) 13 B) 14 C) 169 D) 26

Answer: A

25) $P_1 = (0, -8)$; $P_2 = (9, -8)$

A) 8 B) $\sqrt{145}$ C) 9 D) 81

Answer: C

26) $P_1 = (0, 0)$; $P_2 = (5, -7)$

A) 2 B) $\sqrt{35}$ C) 74 D) $\sqrt{74}$

Answer: D

27) $P_1 = (2, 5)$; $P_2 = (-2, -4)$

A) $\sqrt{65}$ B) 36 C) $\sqrt{97}$ D) 5

Answer: C

28) $P_1 = (2, -7)$; $P_2 = (5, -1)$

A) 27 B) 3 C) $3\sqrt{5}$ D) $27\sqrt{3}$

Answer: C

29) $P_1 = (-3, -2)$; $P_2 = (1, 4)$

A) $20\sqrt{5}$ B) 2 C) 20 D) $2\sqrt{13}$

Answer: D

30) $P_1 = (0.6, -0.9)$; $P_2 = (2.6, 1.5)$ Round to three decimal places, if necessary.

A) 3.224 B) 3.124 C) 22 D) 9.879

Answer: B

Decide whether or not the points are the vertices of a right triangle.

31) (–2, 2), (0, 2), (0, 11)

A) Yes B) No

Answer: A

32) (4, 8), (6, 12), (8, 11)

A) Yes B) No

Answer: A

33) (–9, 7), (–3, 9), (–4, 4)

A) Yes B) No

Answer: B

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34) (–10, –5), (–4, –3), (2, –10)

A) Yes B) No

Answer: B

Solve the problem.

35) Find all values of k so that the given points are $\sqrt{29}$ units apart.
(–5, 5), (k, 0)

A) 3, 7 B) –7 C) 7 D) –3, –7

Answer: D

36) Find the area of the right triangle ABC with A = (–2, 7), B = (7, –1), C = (3, 9).

A) 29 square units B) $\frac{\sqrt{58}}{2}$ square units C) $\frac{\sqrt{29}}{2}$ square units D) 58 square units

Answer: A

37) Find all the points having an x–coordinate of 9 whose distance from the point (3, –2) is 10.

A) (9, 2), (9, –4) B) (9, 13), (9, –7) C) (9, 6), (9, –10) D) (9, –12), (9, 8)

Answer: C

38) A middle school's baseball playing field is a square, 80 feet on a side. How far is it directly from home plate to second base (the diagonal of the square)? If necessary, round to the nearest foot.

A) 112 feet B) 113 feet C) 120 feet D) 114 feet

Answer: B

39) A motorcycle and a car leave an intersection at the same time. The motorcycle heads north at an average speed of 20 miles per hour, while the car heads east at an average speed of 48 miles per hour. Find an expression for their distance apart in miles at the end of t hours.

A) $52\sqrt{t}$ miles B) 52t miles C) $2t\sqrt{13}$ miles D) $t\sqrt{68}$ miles

Answer: B

40) A rectangular city park has a jogging loop that goes along a length, width, and diagonal of the park. To the nearest yard, find the length of the jogging loop, if the length of the park is 125 yards and its width is 75 yards.

A) 146 yards B) 346 yards C) 345 yards D) 145 yards

Answer: B

41) Find the length of each side of the triangle determined by the three points P_1, P_2, and P_3. State whether the triangle is an isosceles triangle, a right triangle, neither of these, or both.
$P_1 = (-5, -4)$, $P_2 = (-3, 4)$, $P_3 = (0, -1)$

A) $d(P_1, P_2) = 2\sqrt{17}$; $d(P_2, P_3) = \sqrt{34}$; $d(P_1, P_3) = \sqrt{34}$
both

B) $d(P_1, P_2) = 2\sqrt{17}$; $d(P_2, P_3) = \sqrt{34}$; $d(P_1, P_3) = 5\sqrt{2}$
right triangle

C) $d(P_1, P_2) = 2\sqrt{17}$; $d(P_2, P_3) = \sqrt{34}$; $d(P_1, P_3) = \sqrt{34}$
isosceles triangle

D) $d(P_1, P_2) = 2\sqrt{17}$; $d(P_2, P_3) = \sqrt{34}$; $d(P_1, P_3) = 5\sqrt{2}$
neither

Answer: A

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Find the midpoint of the line segment joining the points P_1 and P_2.

42) $P_1 = (4, 5)$; $P_2 = (2, 9)$

A) (7, 3) B) (2, –4) C) (6, 14) D) (3, 7)

Answer: D

43) $P_1 = (-2, -2)$; $P_2 = (4, 5)$

A) $\left(-3, -\frac{7}{2}\right)$ B) $(-6, -7)$ C) $(2, 3)$ D) $\left(1, \frac{3}{2}\right)$

Answer: D

44) $P_1 = (7, 1)$; $P_2 = (-16, -16)$

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

Answer: B

45) $P_1 = (0.5, -0.8)$; $P_2 = (1.3, -2.7)$

A) (0.9, –1.75) B) (–0.95, 0.4) C) (–1.75, 0.9) D) (0.4, –0.95)

Answer: A

46) $P_1 = (a, 1)$; $P_2 = (0, 2)$

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

Answer: C

47) $P_1 = (4b, 6)$; $P_2 = (5b, 9)$

A) $(9b, 15)$ B) $\left(\frac{9b}{2}, \frac{15}{2}\right)$ C) $\left(\frac{15b}{2}, \frac{9}{2}\right)$ D) $(b, 3)$

Answer: B

Solve the problem.

48) If (–2, –2) is the endpoint of a line segment, and (–1, 1) is its midpoint, find the other endpoint.

A) (–4, –8) B) (4, 0) C) (0, –5) D) (0, 4)

Answer: D

49) If (–4, 2) is the endpoint of a line segment, and (–9, –2) is its midpoint, find the other endpoint.

A) (–14, 6) B) (6, 10) C) (–12, –8) D) (–14, –6)

Answer: D

50) If (–10, 8) is the endpoint of a line segment, and (–6, 5) is its midpoint, find the other endpoint.

A) (–18, 14) B) (–2, 2) C) (–16, 16) D) (–2, 11)

Answer: B

51) If (–3, –2) is the endpoint of a line segment, and (–4, 1) is its midpoint, find the other endpoint.

A) (–5, –5) B) (3, –4) C) (–1, –8) D) (–5, 4)

Answer: D

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52) The medians of a triangle intersect at a point. The distance from the vertex to the point is exactly two-thirds of the distance from the vertex to the midpoint of the opposite side. Find the exact distance of that point from the vertex A(3, 4) of a triangle, given that the other two vertices are at (0, 0) and (8, 0).

A) $\frac{\sqrt{17}}{3}$ B) $\frac{8}{3}$ C) $\frac{2\sqrt{17}}{3}$ D) 2

Answer: C

Determine whether the given point is on the graph of the equation.

53) Equation: $y = x^3 - \sqrt{x}$
Point: (–1, –2)

A) Yes B) No

Answer: B

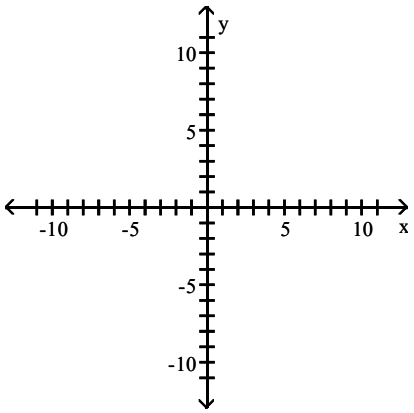
54) Equation: $x^2 + y^2 = 36$
Point: (6, 6)

A) No B) Yes

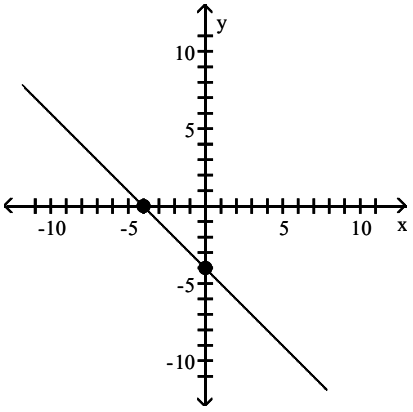
Answer: A

Graph the equation by plotting points.

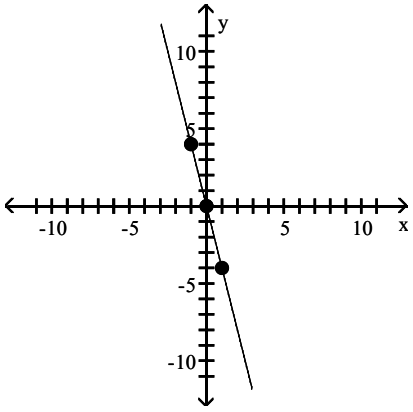
55) $y = x - 4$



A)

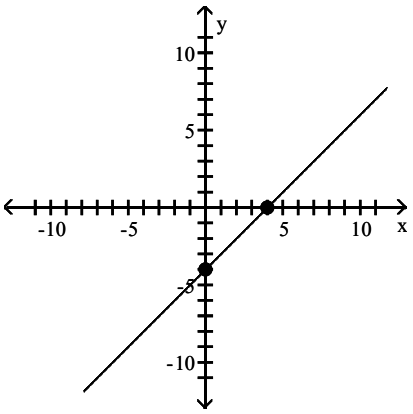


B)

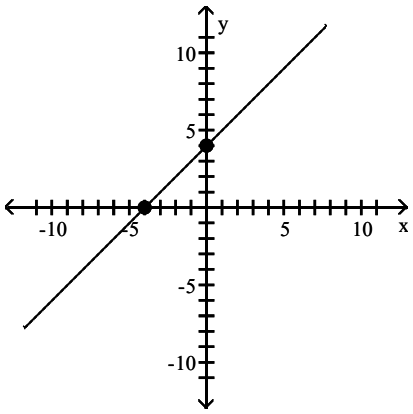


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C)

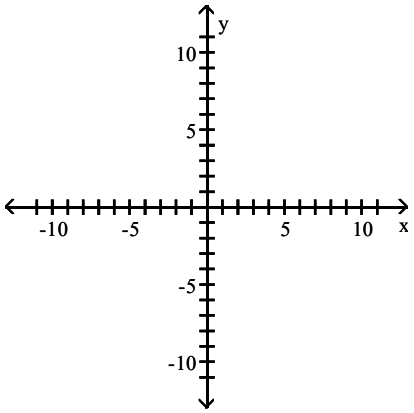


D)

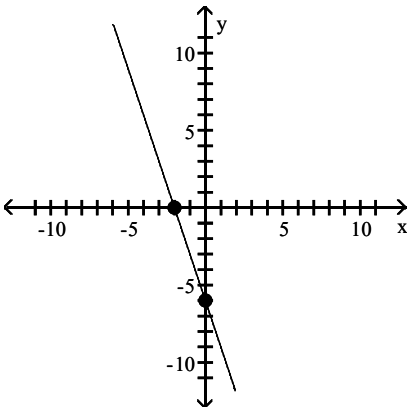


Answer: C

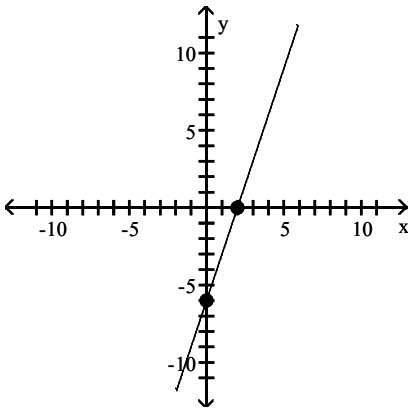
56) $y = 3x + 6$



A)

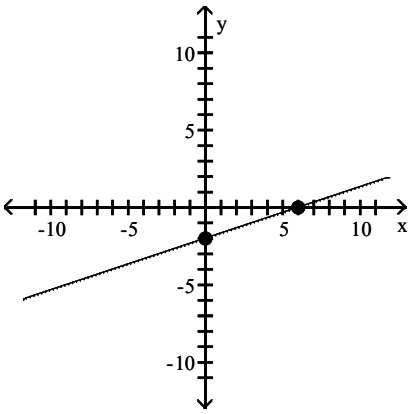


B)

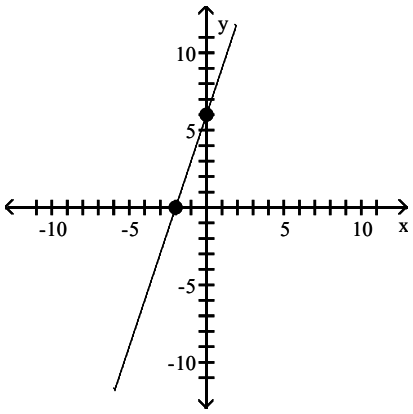


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C)

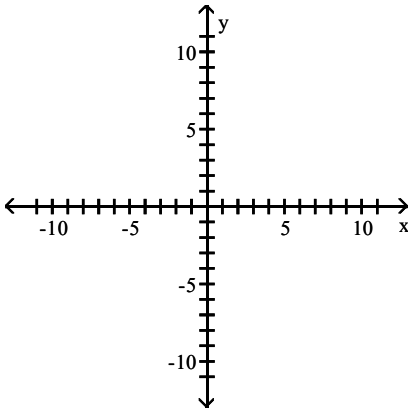


D)

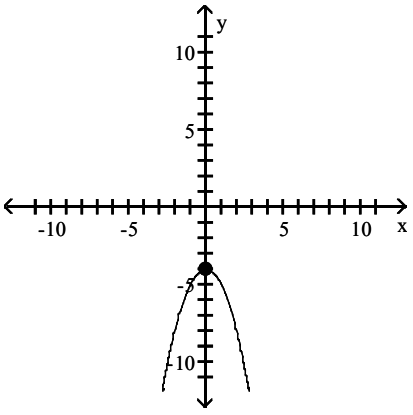


Answer: D

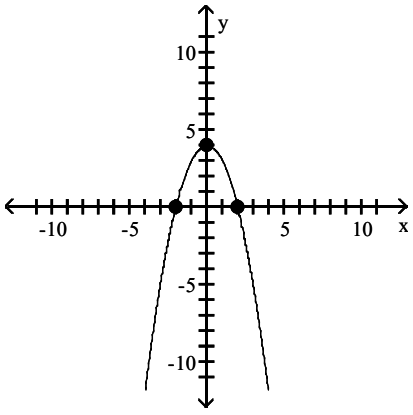
57) $y = -x^2 + 4$



A)

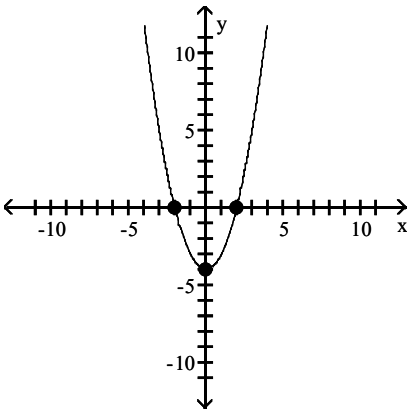


B)

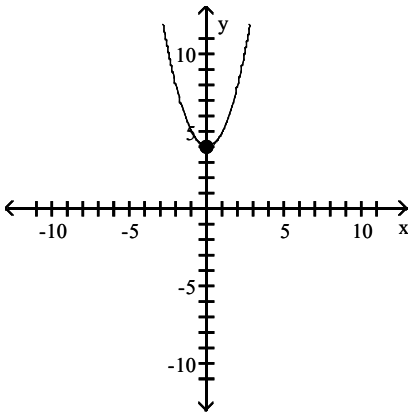


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C)

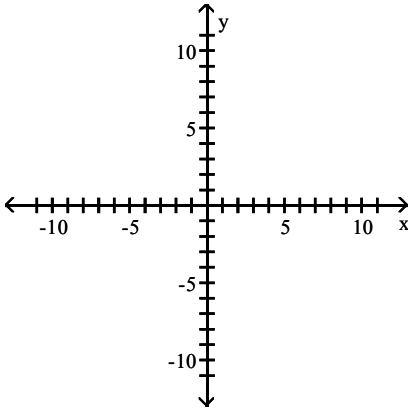


D)

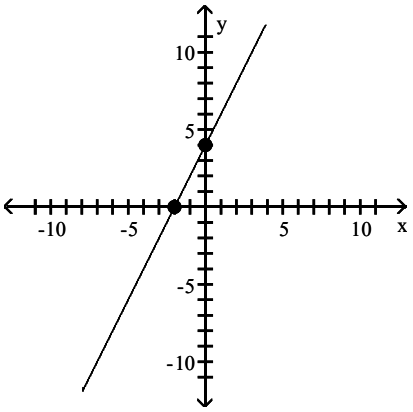


Answer: B

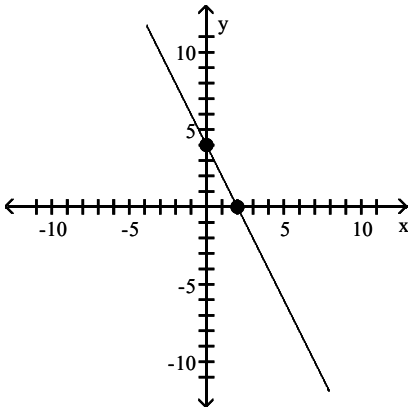
58) $4x + 2y = 8$



A)

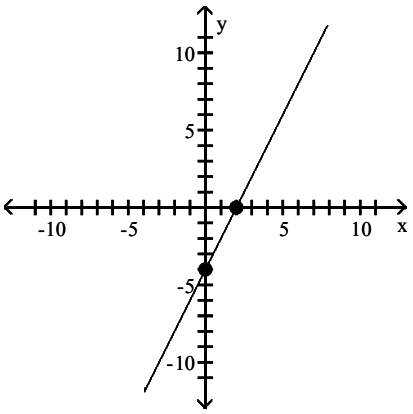


B)

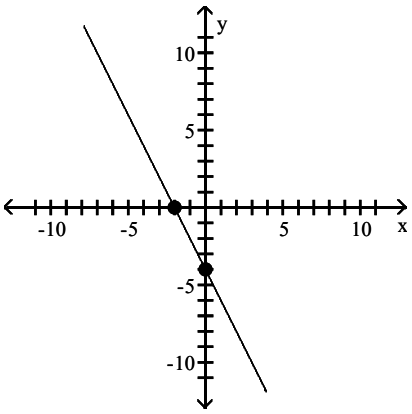


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C)

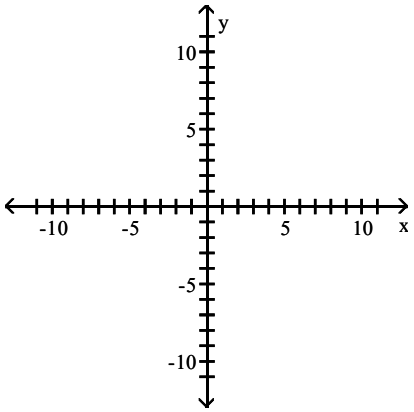


D)

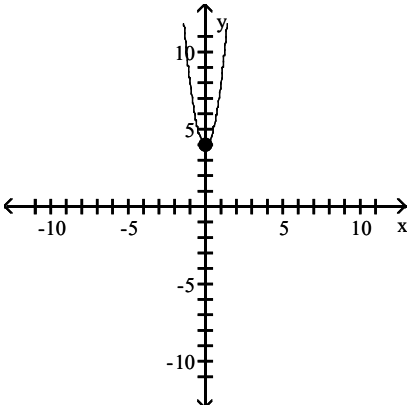


Answer: B

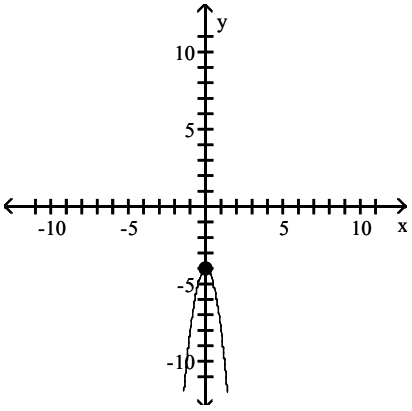
59) $4x^2 + y = 4$



A)

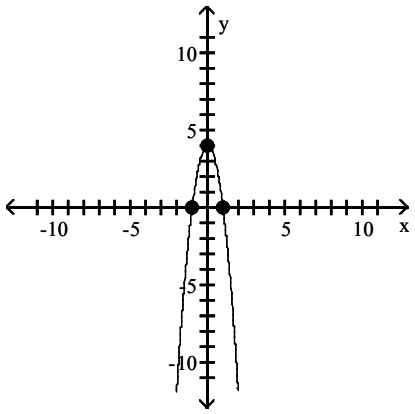


B)

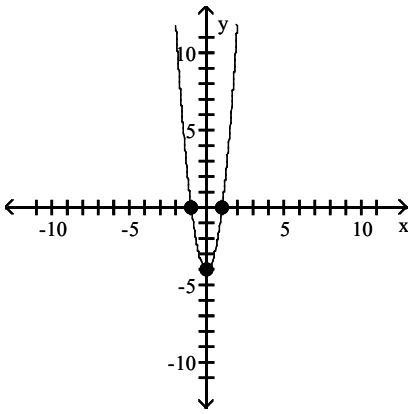


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C)



D)



Answer: C

Solve the problem.

60) If (a, 3) is a point on the graph of $y = 2x - 5$, what is a?

A) 4 B) –1 C) –4 D) 1

Answer: A

61) If (3, b) is a point on the graph of $3x - 2y = 17$, what is b?

A) –4 B) $\frac{23}{3}$ C) $\frac{11}{3}$ D) 4

Answer: A

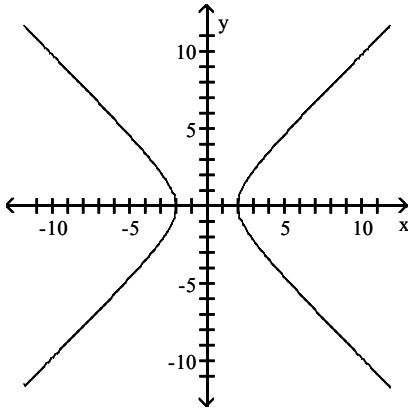
62) The height of a baseball (in feet) at time t (in seconds) is given by $y = -16x^2 + 80x + 5$. Which one of the following points is not on the graph of the equation?

A) (2, 117) B) (3, 101) C) (1, 69) D) (4, 69)

Answer: A

List the intercepts of the graph.

63)

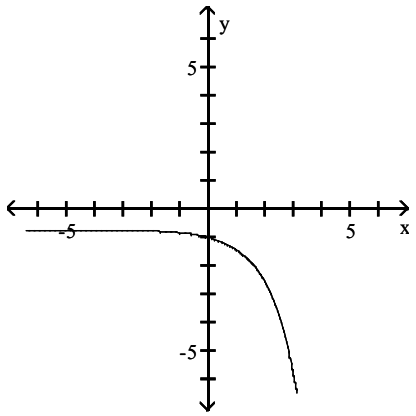


A) (0, –2), (0, 2) B) (–2, 0), (2, 0) C) (–2, 0), (0, 2) D) (0, –2), (2, 0)

Answer: B

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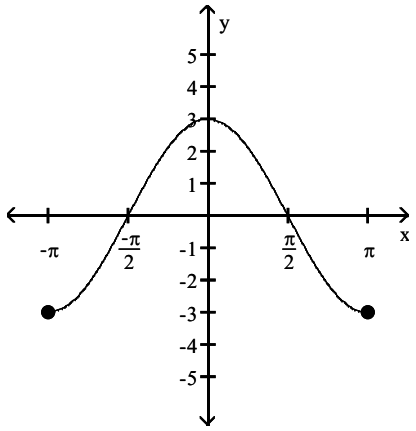
64)



A) (–1, 0) B) (0, 0) C) (0, –1) D) (–1, –1)

Answer: C

65)



A) $\left(-\frac{\pi}{2}, 0\right), (3, 0), \left(\frac{\pi}{2}, 0\right)$

B) $\left(0, -\frac{\pi}{2}\right), (0, 3), \left(0, \frac{\pi}{2}\right)$

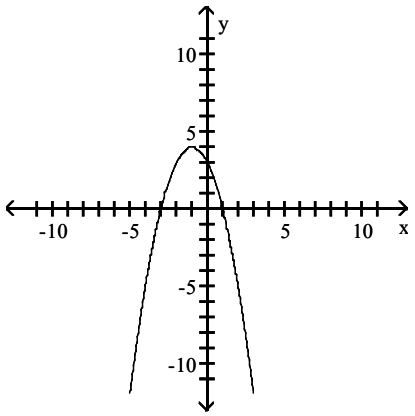
C) $\left(0, -\frac{\pi}{2}\right), (3, 0), \left(0, \frac{\pi}{2}\right)$

D) $\left(-\frac{\pi}{2}, 0\right), (0, 3), \left(\frac{\pi}{2}, 0\right)$

Answer: D

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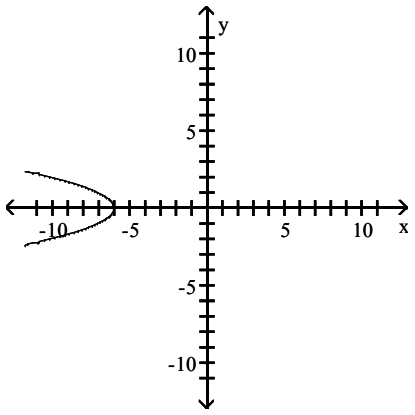
66)



A) (0, –3), (3, 0), (0, 1) B) (–3, 0), (0, 3), (1, 0) C) (–3, 0), (0, 3), (0, 1) D) (0, –3), (0, 3), (1, 0)

Answer: B

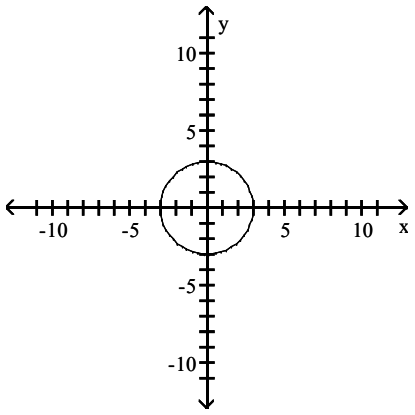
67)



A) (–6, 0) B) (0, –6) C) (0, 6) D) (6, 0)

Answer: A

68)

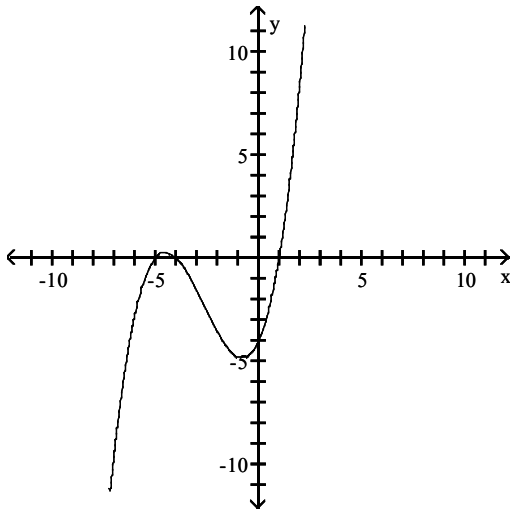


A) (0, 3), (3, 0) B) (–3, 0), (0, –3), (0, 3), (3, 0)
C) (–3, 0), (0, –3), (0, 0), (0, 3), (3, 0) D) (–3, 0), (0, 3)

Answer: B

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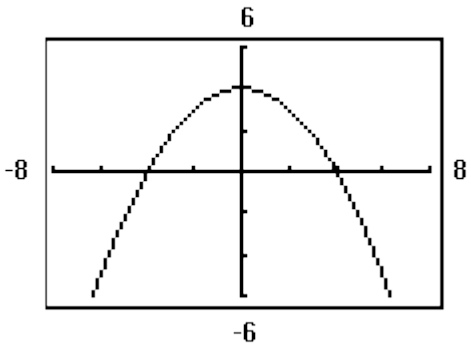
69)



A) (4, 0), (1, 0), (5, 0), (0, –4)
B) (–4, 0), (0, 4), (0, 1), (0, 5)
C) (–4, 0), (1, 0) (–5, 0), (0, –4)
D) (–4, 0), (0, –4), (0, 1), (0, –5)

Answer: C

70)



A) (–2, 0), (2, 0)
B) (–4, 0), (0, 4), (4, 0)
C) (–2, 0), (0, 4), (2, 0)
D) (–2, 0), (0, 2), (2, 0)

Answer: B

List the intercepts for the graph of the equation.

71) $y = x - 6$

A) (6, 0), (0, –6)
B) (6, 0), (0, 6)
C) (–6, 0), (0, 6)
D) (–6, 0), (0, –6)

Answer: A

72) $y = 5x$

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

Answer: B

73) $y^2 = x + 36$

A) (6, 0), (0, 36), (0, –36)
B) (0, –6), (36, 0), (0, 6)
C) (0, –6), (–36, 0), (0, 6)
D) (–6, 0), (0, –36), (6, 0)

Answer: C

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74) $y = \sqrt[9]{x}$

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

Answer: A

75) $x^2 + y - 16 = 0$

A) (0, –4), (16, 0), (0, 4)
B) (–4, 0), (0, –16), (4, 0)
C) (–4, 0), (0, 16), (4, 0)
D) (4, 0), (0, 16), (0, –16)

Answer: C

76) $4x^2 + 9y^2 = 36$

A) (–2, 0), (–3, 0), (3, 0), (2, 0)
B) (–4, 0), (–9, 0), (9, 0), (4, 0)
C) (–9, 0), (0, –4), (0, 4), (9, 0)
D) (–3, 0), (0, –2), (0, 2), (3, 0)

Answer: D

77) $4x^2 + y^2 = 4$

A) (–1, 0), (0, –4), (0, 4), (1, 0)
B) (–4, 0), (0, –1), (0, 1), (4, 0)
C) (–1, 0), (0, –2), (0, 2), (1, 0)
D) (–2, 0), (0, –1), (0, 1), (2, 0)

Answer: C

78) $y = x^3 - 8$

A) (0, –8), (2, 0) B) (0, –2), (–2, 0) C) (–8, 0), (0, 2) D) (0, –2), (0, 2)

Answer: A

79) $y = x^4 - 16$

A) (0, 16)
B) (0, 16), (–2, 0), (2, 0)
C) (0, –16), (–2, 0), (2, 0)
D) (0, –16)

Answer: C

80) $y = x^2 + 9x + 14$

A) (0, –2), (0, –7), (14, 0)
B) (0, 2), (0, 7), (14, 0)
C) (2, 0), (7, 0), (0, 14)
D) (–2, 0), (–7, 0), (0, 14)

Answer: D

81) $y = x^2 + 1$

A) (0, 1), (–1, 0), (1, 0) B) (1, 0) C) (1, 0), (0, –1), (0, 1) D) (0, 1)

Answer: D

82) $y = \dfrac{8x}{x^2 + 64}$

A) (–64, 0), (0, 0), (64, 0)
B) (0, –8), (0, 0), (0, 8)
C) (–8, 0), (0, 0), (8, 0)
D) (0, 0)

Answer: D

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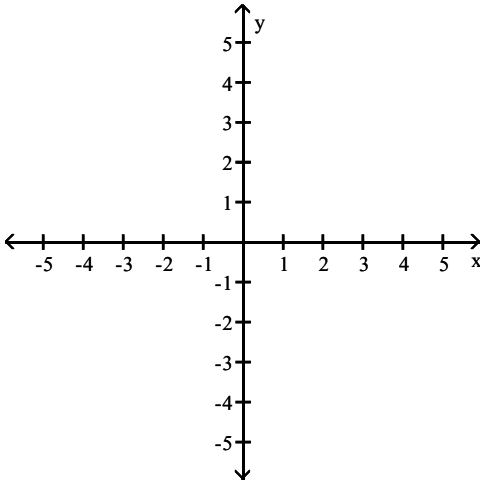
83) $y = \dfrac{x^2 - 36}{6x^4}$

A) (0, 0)
B) (–6, 0), (6, 0)
C) (–36, 0), (0, 0), (36, 0)
D) (0, –6), (0, 6)

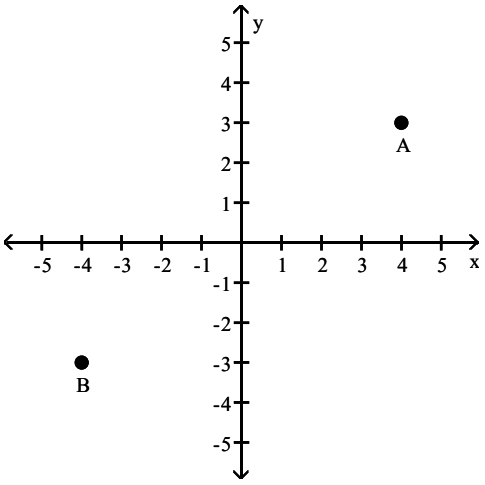
Answer: B

Plot the point A. Plot the point B that has the given symmetry with point A.

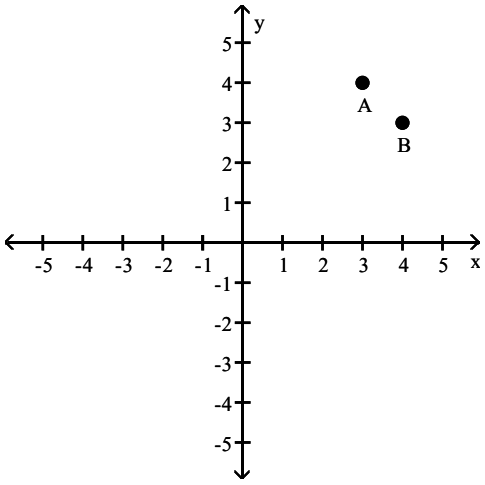
84) A = (3, 4); B is symmetric to A with respect to the origin



A)

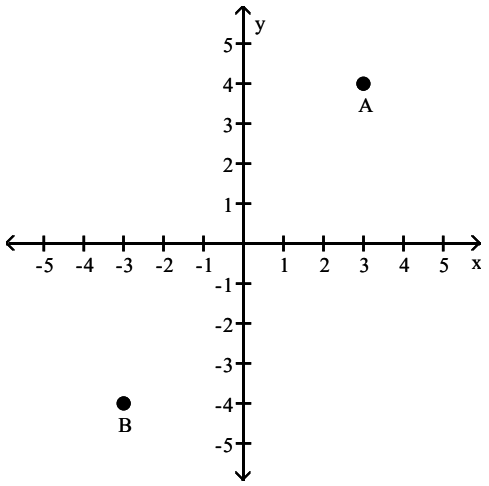


B)

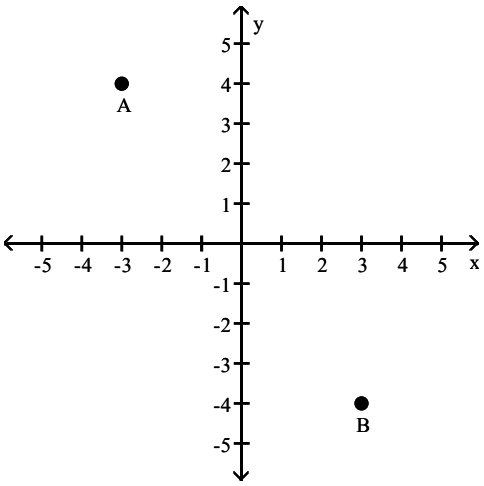


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C)

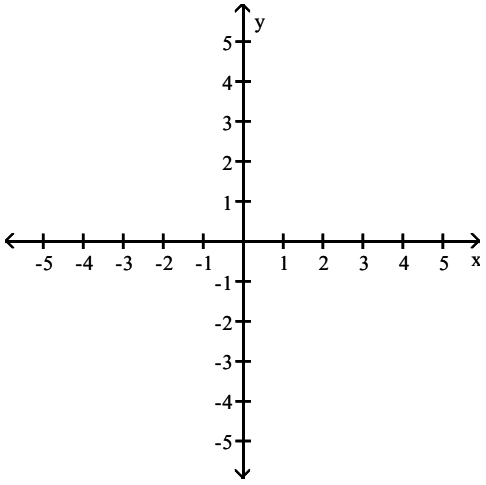


D)

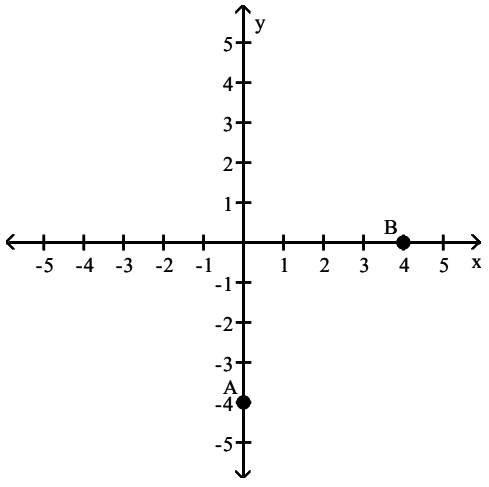


Answer: C

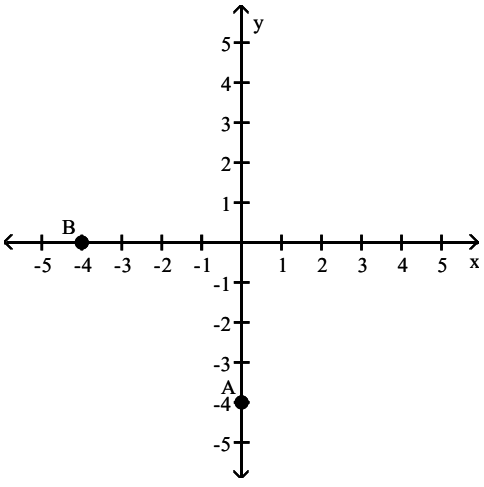
85) A = (0, –4); B is symmetric to A with respect to the origin



A)

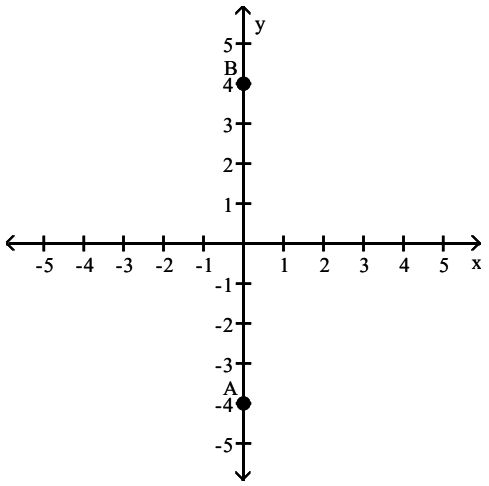


B)

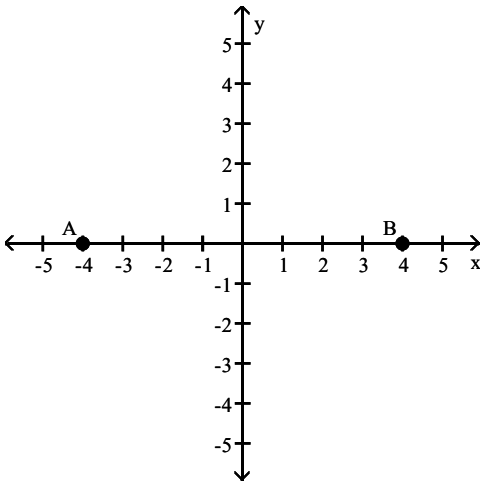


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C)



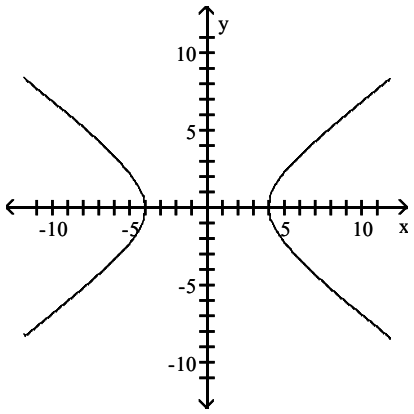
D)



Answer: C

List the intercepts of the graph.Tell whether the graph is symmetric with respect to the x–axis, y–axis, origin, or none of these.

86)



A) intercepts: (–4, 0) and (4, 0)
symmetric with respect to origin

B) intercepts: (–4, 0) and (4, 0)
symmetric with respect to x–axis, y–axis, and origin

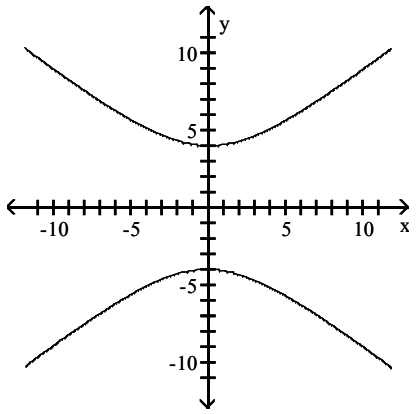
C) intercepts: (0, –4) and (0, 4)
symmetric with respect to x–axis, y–axis, and origin

D) intercepts: (0, –4) and (0, 4)
symmetric with respect to y–axis

Answer: B

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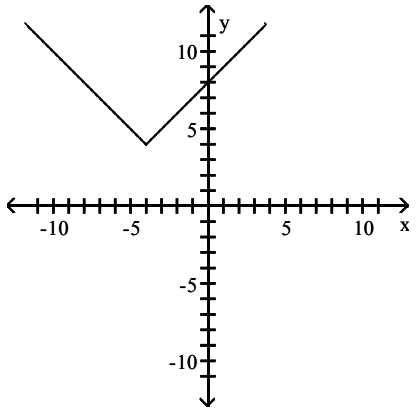
87)



A) intercepts: (0, 4) and (0, –4)
symmetric with respect to origin
B) intercepts: (0, 4) and (0, –4)
symmetric with respect to x–axis, y–axis, and origin
C) intercepts: (4, 0) and (–4, 0)
symmetric with respect to x–axis, y–axis, and origin
D) intercepts: (4, 0) and (–4, 0
symmetric with respect to y–axis

Answer: B

88)

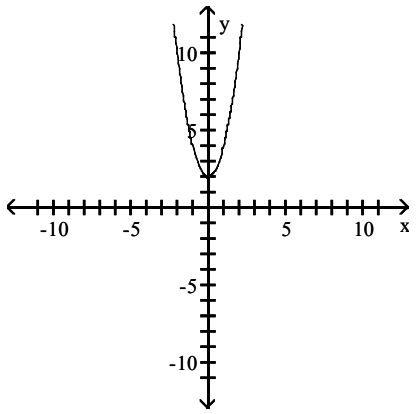


A) intercept: (8, 0)
no symmetry
B) intercept: (0, 8)
no symmetry
C) intercept: (0, 8)
symmetric with respect to x–axis
D) intercept: (8, 0)
symmetric with respect to y–axis

Answer: B

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89)



A) intercept: (2, 0)
symmetric with respect to x–axis

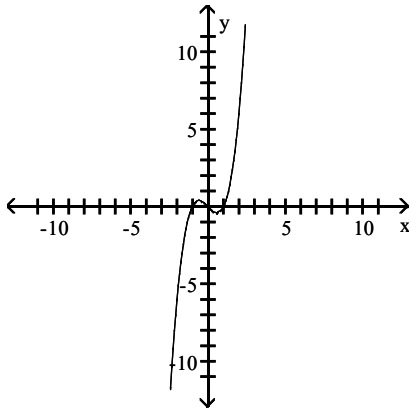
B) intercept: (0, 2)
symmetric with respect to y–axis

C) intercept: (0, 2)
symmetric with respect to origin

D) intercept: (2, 0)
symmetric with respect to y–axis

Answer: B

90)



A) intercepts: (–1, 0), (0, 0), (1, 0)
symmetric with respect to x–axis

B) intercepts: (–1, 0), (0, 0), (1, 0)
symmetric with respect to y–axis

C) intercepts: (–1, 0), (0, 0), (1, 0)
symmetric with respect to x–axis, y–axis, and origin

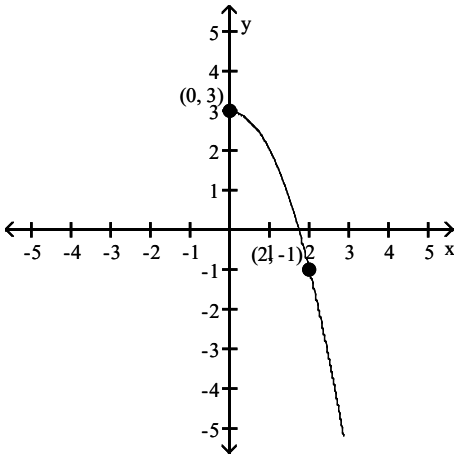
D) intercepts: (–1, 0), (0, 0), (1, 0)
symmetric with respect to origin

Answer: D

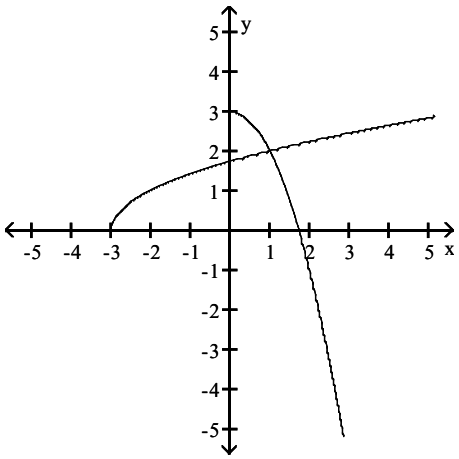
Draw a complete graph so that it has the given type of symmetry.

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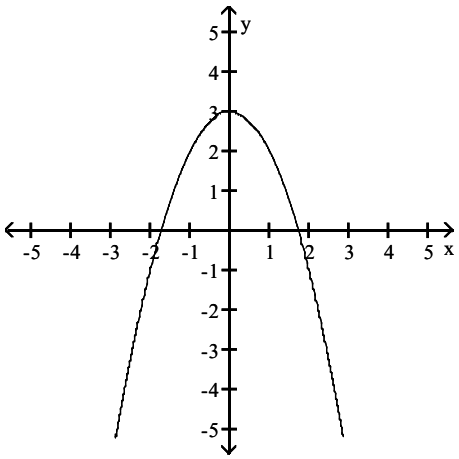
91) Symmetric with respect to the y-axis



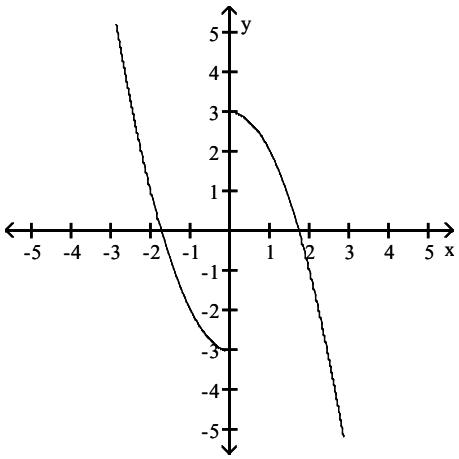
A)



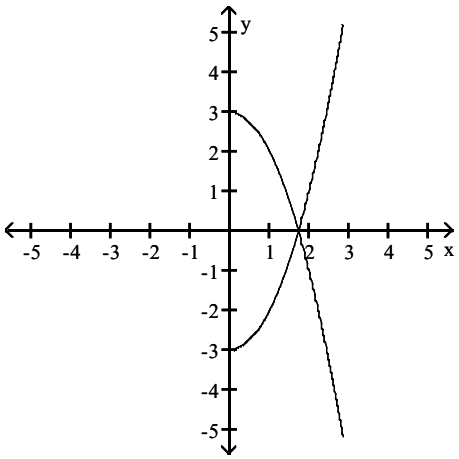
B)



C)



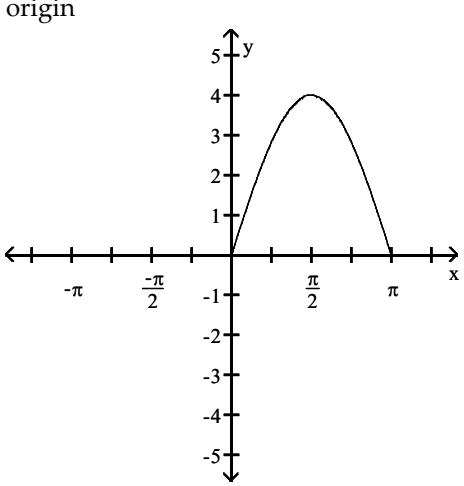
D)



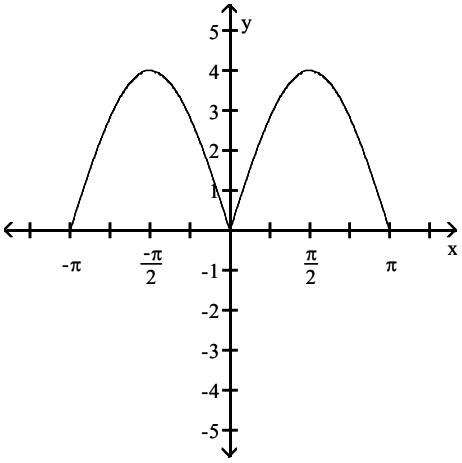
Answer: B

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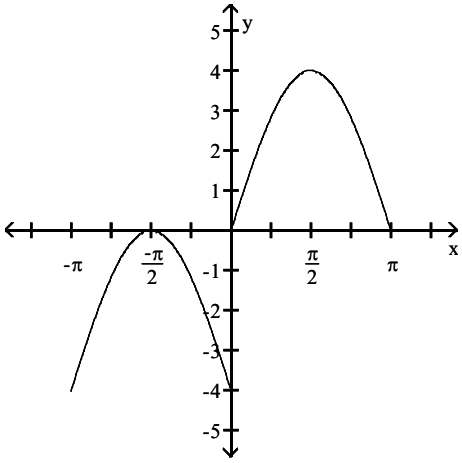
92) origin



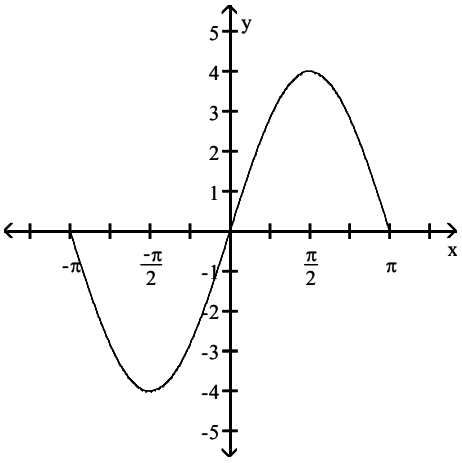
A)



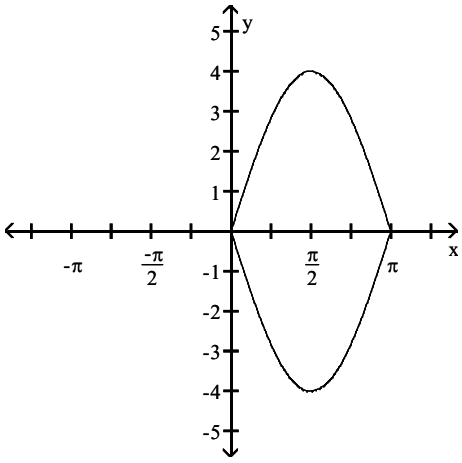
B)



C)



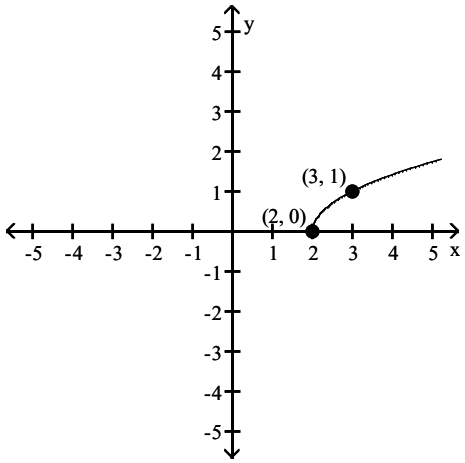
D)



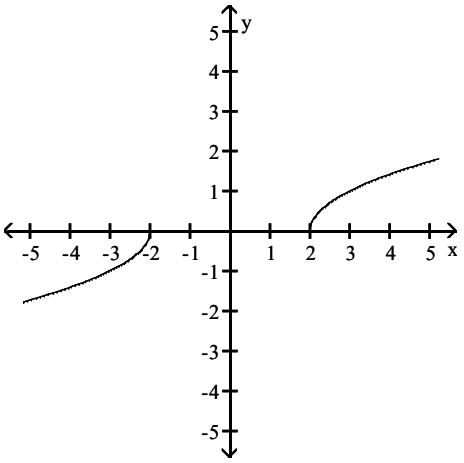
Answer: C

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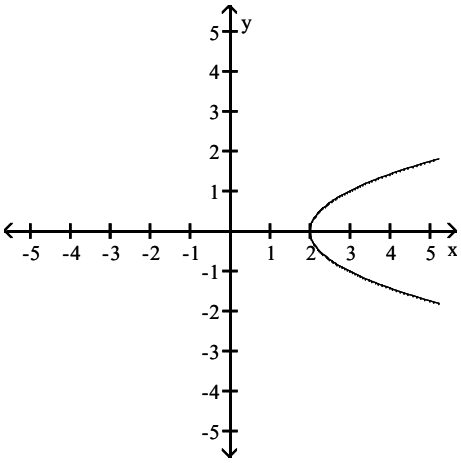
93) Symmetric with respect to the x–axis



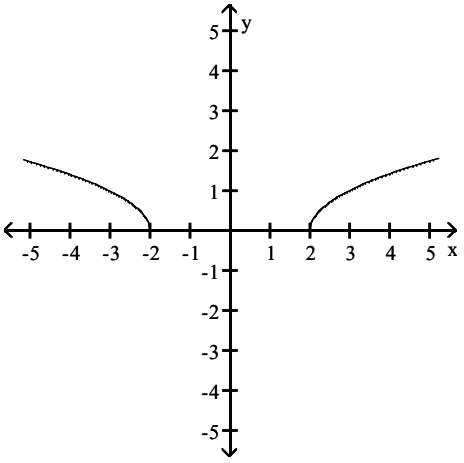
A)



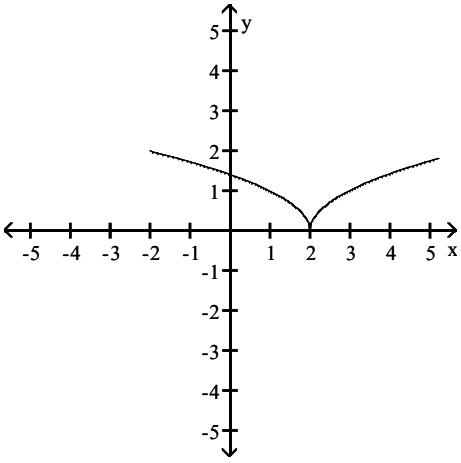
B)



C)



D)



Answer: B

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List the intercepts and type(s) of symmetry, if any.

94) $y^2 = -x + 4$

A) intercepts: (4, 0), (0, 2), (0, –2)
symmetric with respect to x–axis

B) intercepts: (–4, 0), (0, 2), (0, –2)
symmetric with respect to x–axis

C) intercepts: (0, –4), (2, 0), (–2, 0)
symmetric with respect to y–axis

D) intercepts: (0, 4), (2, 0), (–2, 0)
symmetric with respect to y–axis

Answer: A

95) $16x^2 + y^2 = 16$

A) intercepts: (4, 0), (–4, 0), (0, 1), (0, –1)
symmetric with respect to x–axis and y–axis

B) intercepts: (4, 0), (–4, 0), (0, 1), (0, –1)
symmetric with respect to the origin

C) intercepts: (1, 0), (–1, 0), (0, 4), (0, –4)
symmetric with respect to x–axis and y–axis

D) intercepts: (1, 0), (–1, 0), (0, 4), (0, –4)
symmetric with respect to x–axis, y–axis, and origin

Answer: D

96) $y = \dfrac{-x^3}{x^2 - 6}$

A) intercepts: $(\sqrt{6}, 0)$, $(-\sqrt{6}, 0)$, (0, 0)
symmetric with respect to origin

B) intercept: (0, 0)
symmetric with respect to y–axis

C) intercept: (0, 0)
symmetric with respect to origin

D) intercept: (0, 0)
symmetric with respect to x–axis

Answer: C

Determine whether the graph of the equation is symmetric with respect to the x–axis, the y–axis, and/or the origin.

97) $y = x + 3$

A) y–axis
B) x–axis
C) origin
D) x–axis, y–axis, origin
E) none

Answer: E

98) $y = 3x$

A) origin
B) y–axis
C) x–axis
D) x–axis, y–axis, origin
E) none

Answer: A

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99) $x^2 + y - 64 = 0$

A) x–axis
B) y–axis
C) origin
D) x–axis, y–axis, origin
E) none

Answer: B

100) $y^2 - x - 81 = 0$

A) x–axis
B) origin
C) y–axis
D) x–axis, y–axis, origin
E) none

Answer: A

101) $4x^2 + 9y^2 = 36$

A) x–axis
B) origin
C) y–axis
D) x–axis, y–axis, origin
E) none

Answer: D

102) $16x^2 + y^2 = 16$

A) origin
B) y–axis
C) x–axis
D) x–axis, y–axis, origin
E) none

Answer: D

103) $y = x^2 + 7x + 12$

A) origin
B) y–axis
C) x–axis
D) x–axis, y–axis, origin
E) none

Answer: E

104) $y = \dfrac{9x}{x^2 + 81}$

A) y–axis
B) origin
C) x–axis
D) x–axis, y–axis, origin
E) none

Answer: B

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105) $y = \dfrac{x^2 - 25}{5x^4}$

A) origin
B) x–axis
C) y–axis
D) x–axis, y–axis, origin
E) none

Answer: C

106) $y = 2x^2 - 4$

A) origin
B) y–axis
C) x–axis
D) x–axis, y–axis, origin
E) none

Answer: B

107) $y = (x - 8)(x - 5)$

A) y–axis
B) origin
C) x–axis
D) x–axis, y–axis, origin
E) none

Answer: E

108) $y = -8x^3 + 3x$

A) origin
B) y–axis
C) x–axis
D) x–axis, y–axis, origin
E) none

Answer: A

109) $y = 9x^4 - 7x + 7$

A) x–axis
B) y–axis
C) origin
D) x–axis, y–axis, origin
E) none

Answer: E

Solve the problem.

110) If a graph is symmetric with respect to the y–axis and it contains the point (5, –6), which of the following points is also on the graph?

A) (–6, 5) B) (–5, 6) C) (5, –6) D) (–5, –6)

Answer: B

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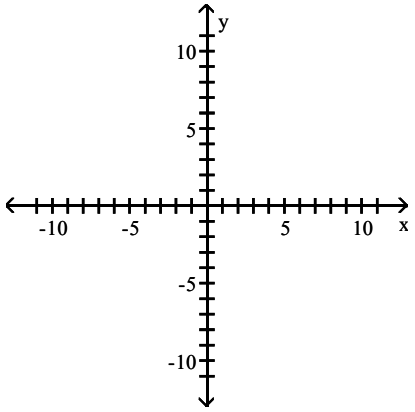
111) If a graph is symmetric with respect to the origin and it contains the point (–4, 7), which of the following points is also on the graph?

A) (7, –4) B) (4, 7) C) (–4, –7) D) (4, –7)

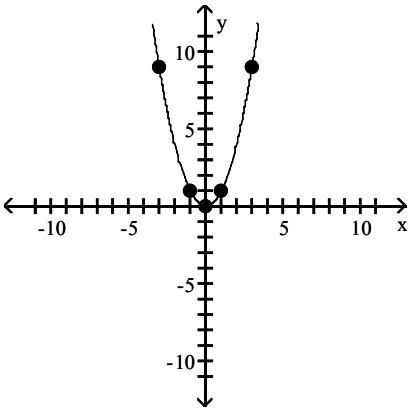
Answer: D

Graph the equation by plotting points.

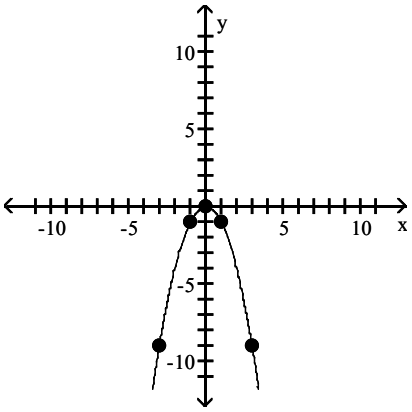
112) $y = x^3$



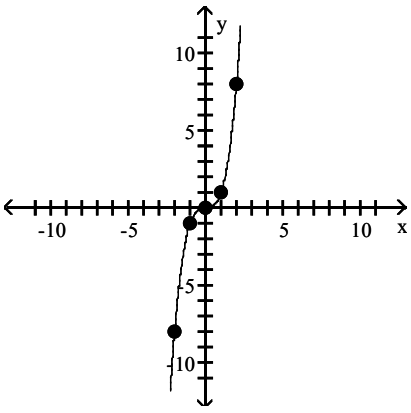
A)



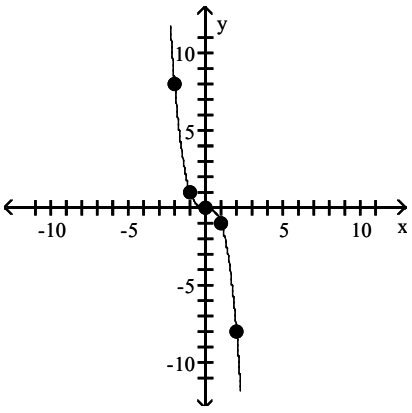
B)



C)



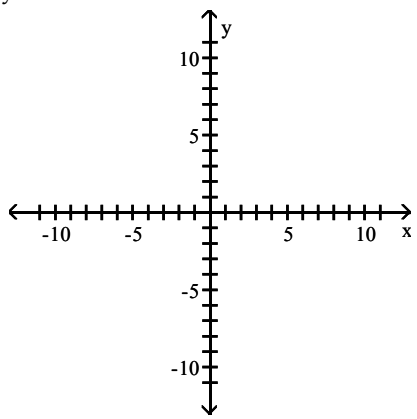
D)



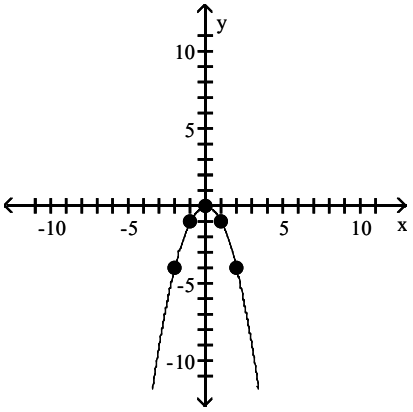
Answer: C

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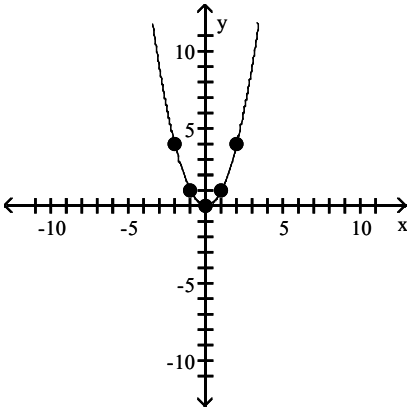
113) $x = y^2$



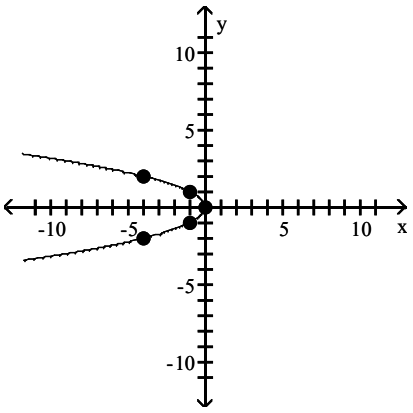
A)



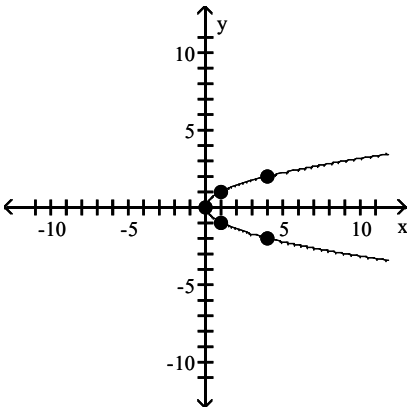
B)



C)



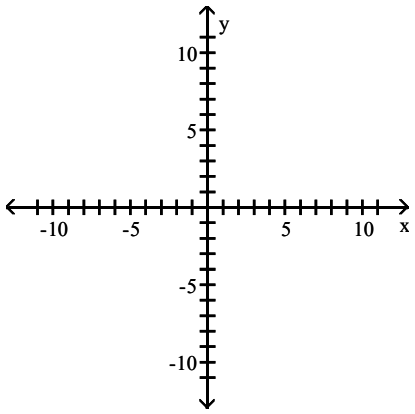
D)



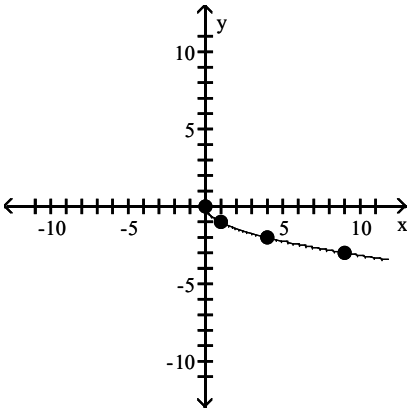
Answer: D

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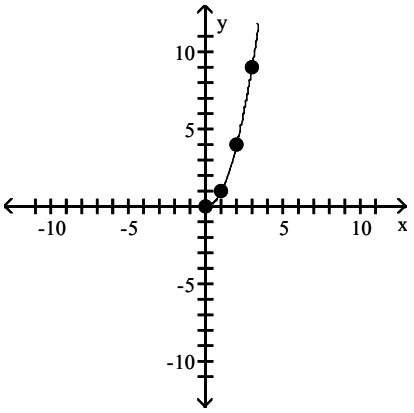
114) $y = \sqrt{x}$



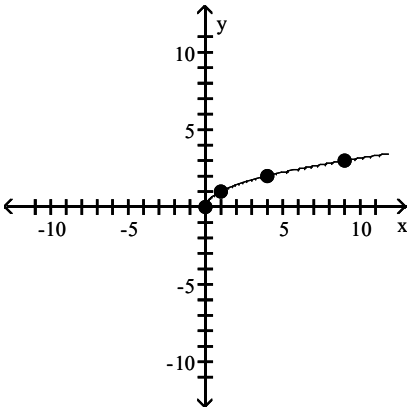
A)



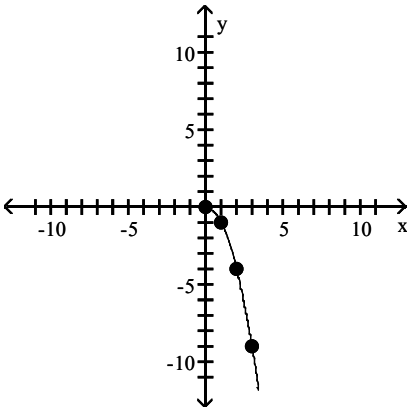
B)



C)



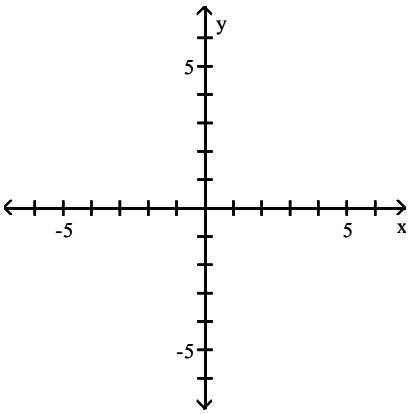
D)



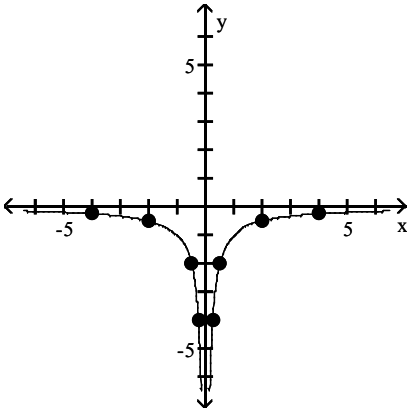
Answer: C

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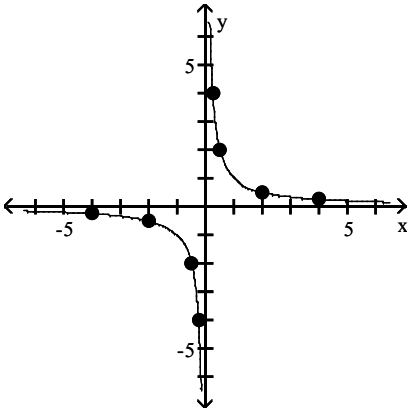
115) $y = \frac{1}{x}$



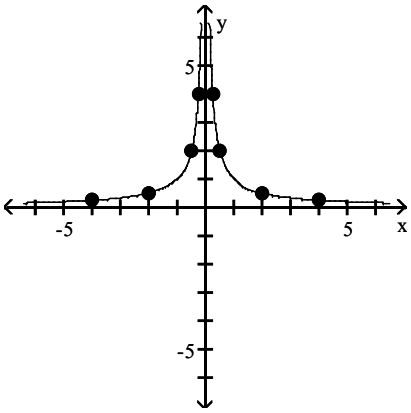
A)



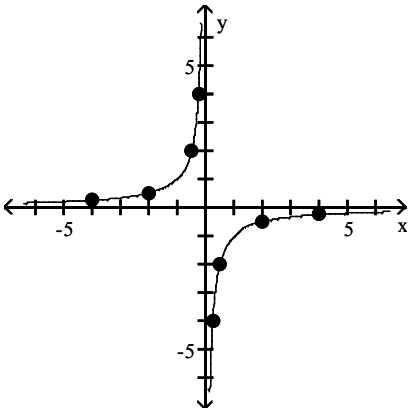
B)



C)



D)

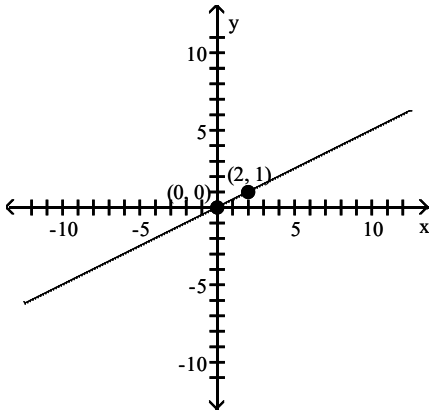


Answer: B

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Find the slope of the line through the points and interpret the slope.

116)



A) 2; for every 1–unit increase in x, y will increase by 2 units

B) $-\frac{1}{2}$; for every 2–unit increase in x, y will decrease by 1 unit

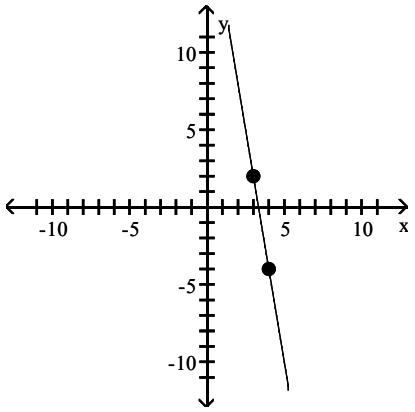
C) –2; for every 1–unit increase in x, y will decrease by 2 units

D) $\frac{1}{2}$; for every 2–unit increase in x, y will increase by 1 unit

Answer: D

Find the slope of the line.

117)

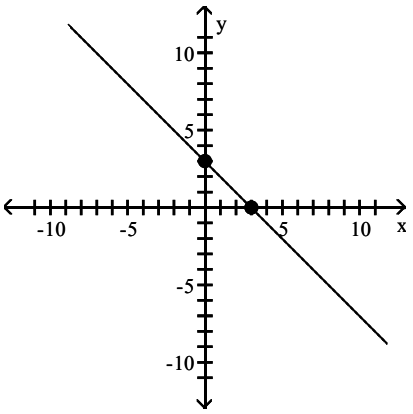


A) 6 B) $\frac{1}{6}$ C) – 6 D) $-\frac{1}{6}$

Answer: C

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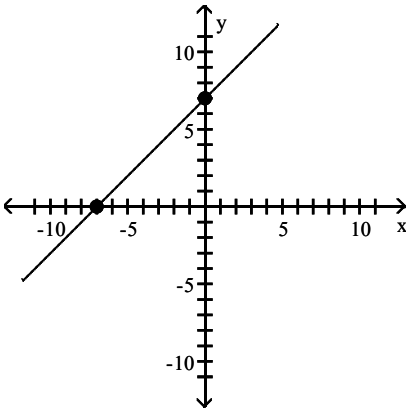
118)



A) –3 B) 3 C) –1 D) 1

Answer: C

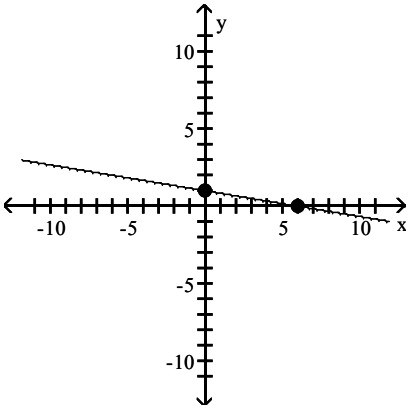
119)



A) 1 B) –7 C) 7 D) –1

Answer: A

120)



A) –6 B) 6 C) $-\frac{1}{6}$ D) $\frac{1}{6}$

Answer: C

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Find the slope of the line containing the two points.

121) (7, –9); (–7, 8)

A) $-\frac{14}{17}$ B) $\frac{17}{14}$ C) $-\frac{17}{14}$ D) $\frac{14}{17}$

Answer: C

122) (5, 0); (0, 3)

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

Answer: D

123) (–7, 6); (2, 7)

A) 9 B) $-\frac{1}{9}$ C) – 9 D) $\frac{1}{9}$

Answer: D

124) (–8, –4); (–8, –3)

A) 0 B) 1 C) – 1 D) undefined

Answer: D

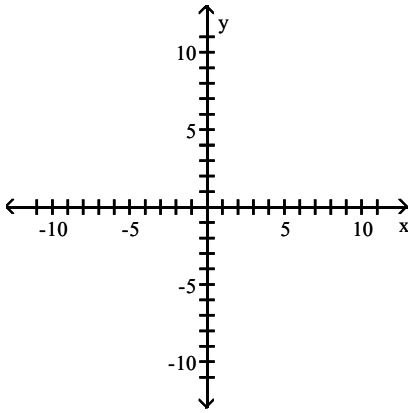
125) (9, 3); (–8, 3)

A) $\frac{1}{17}$ B) –17 C) 0 D) undefined

Answer: C

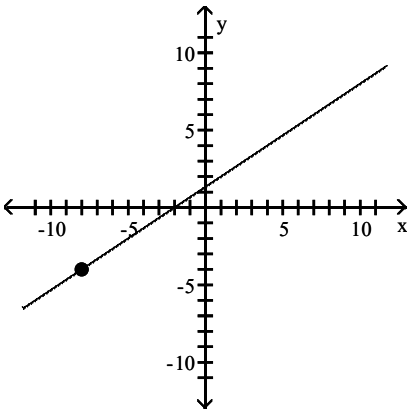
Graph the line containing the point P and having slope m.

126) P = (–8, –4); $m = \frac{2}{3}$

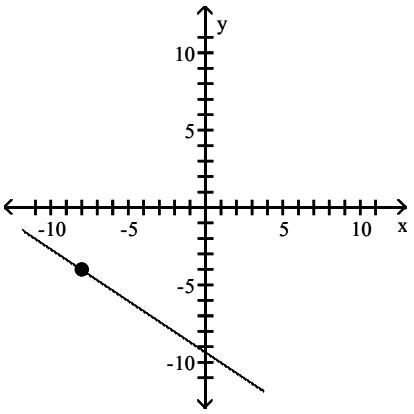


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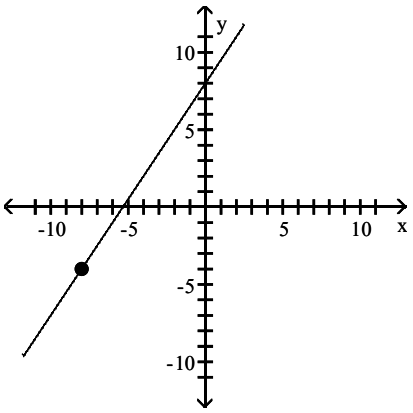
A)



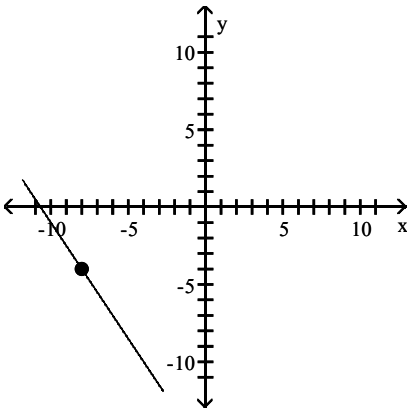
B)



C)

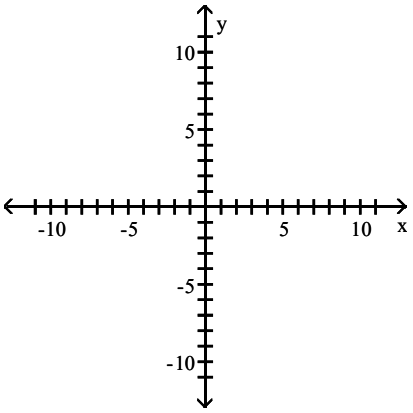


D)



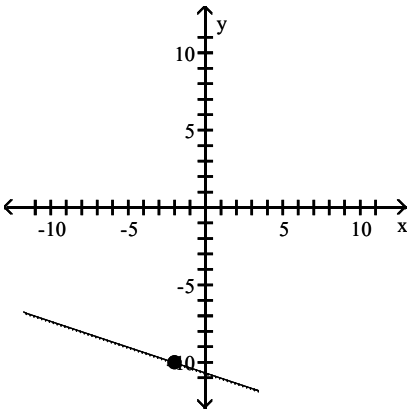
Answer: A

127) P = (–2, –10); m = $\frac{1}{3}$

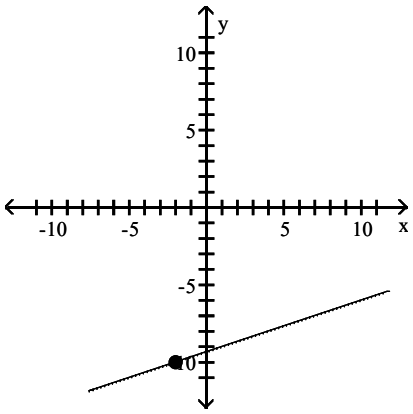


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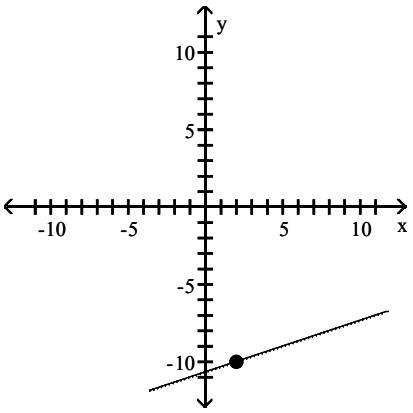
A)



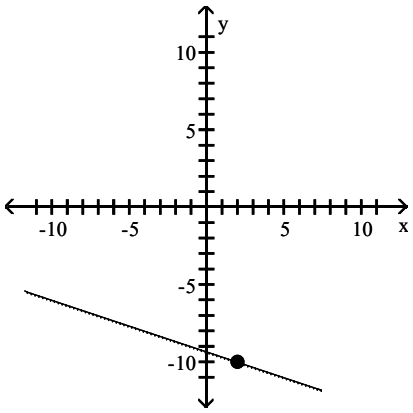
B)



C)

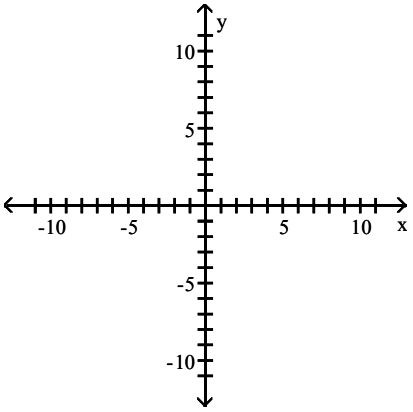


D)



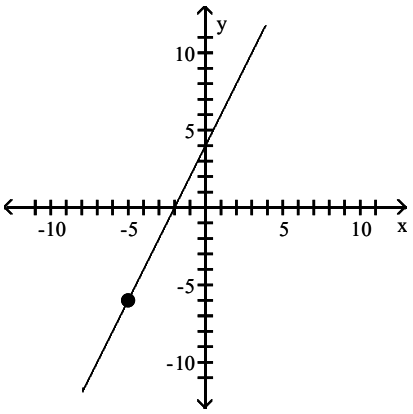
Answer: B

128) P = (–5, –6); m = –2

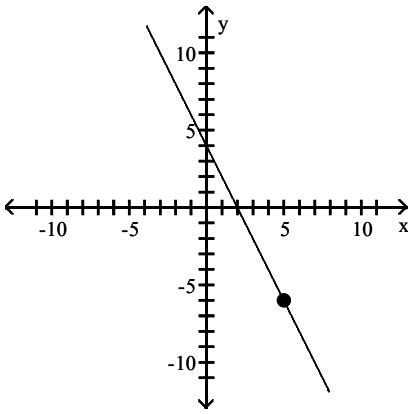


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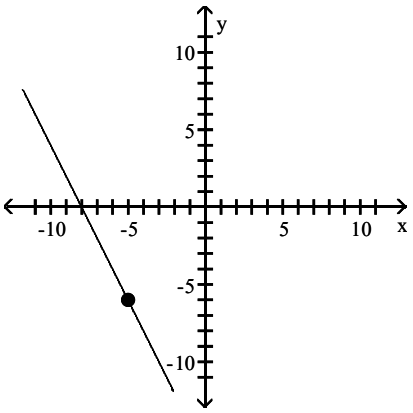
A)



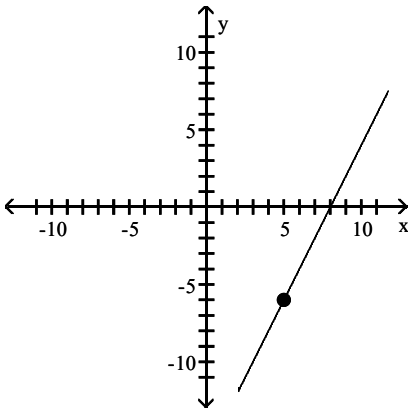
B)



C)

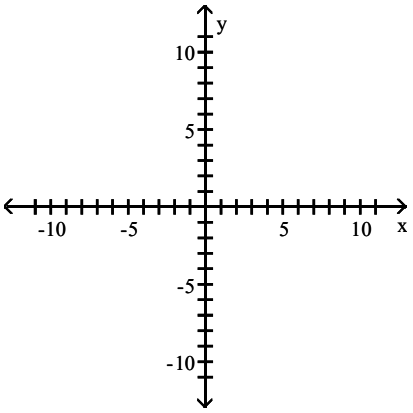


D)



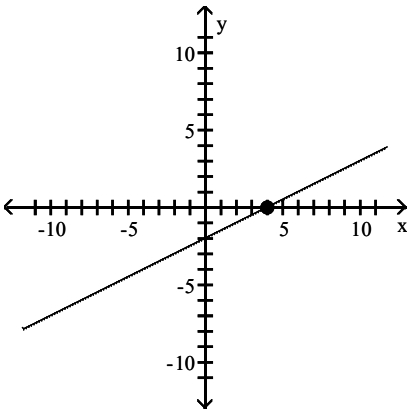
Answer: C

129) P = (0, 4); m = $\frac{1}{2}$

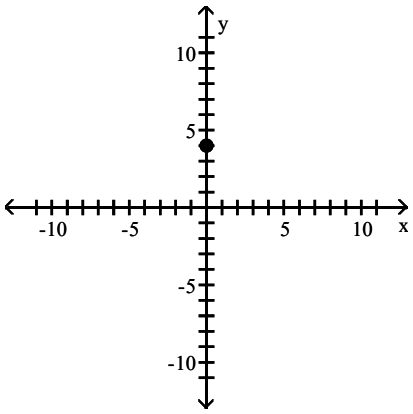


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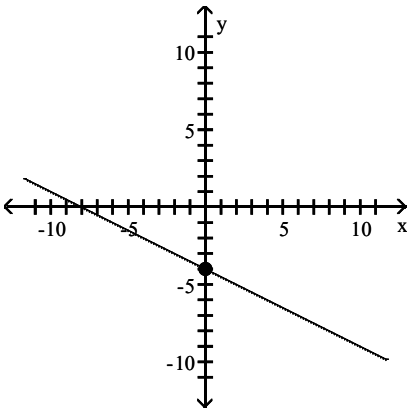
A)



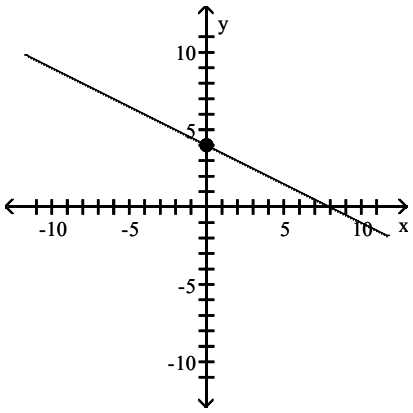
B)



C)

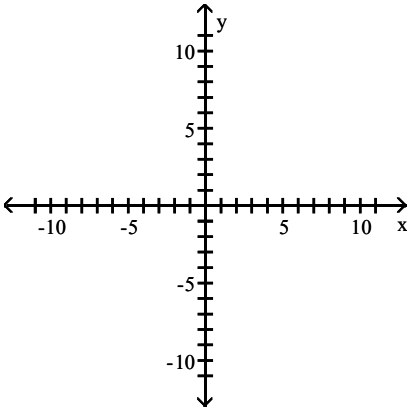


D)



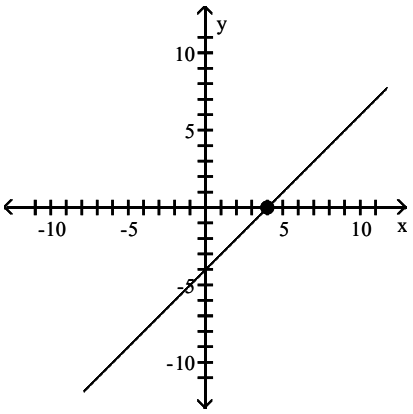
Answer: B

130) P = (0, 4); m = – 1

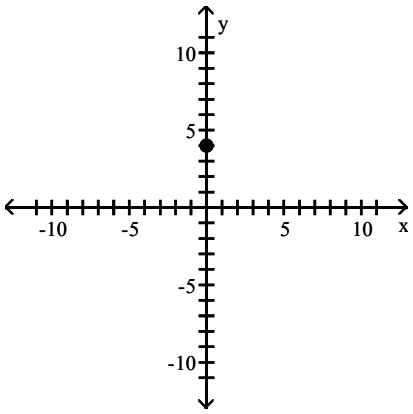


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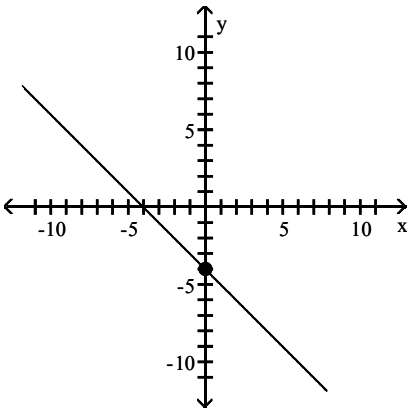
A)



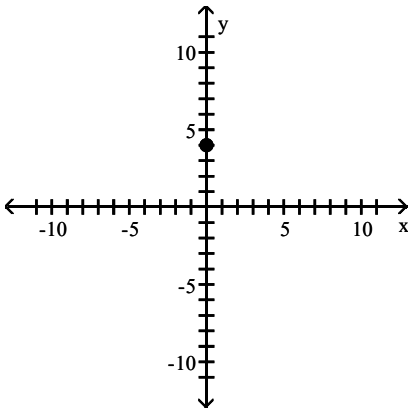
B)



C)

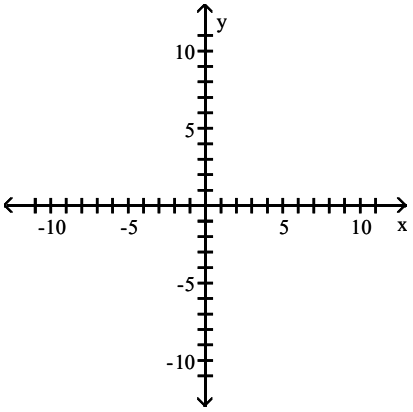


D)



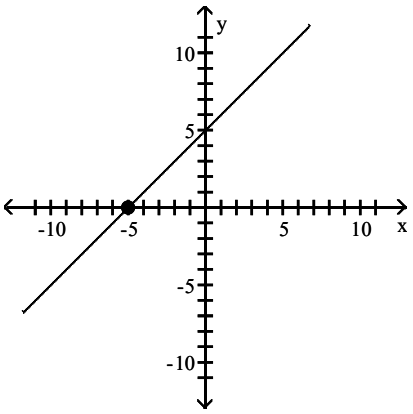
Answer: D

131) P = (–5, 0); m = 1

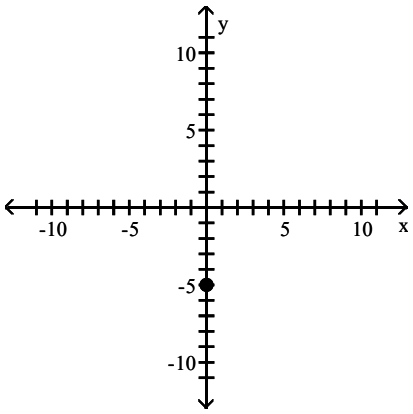


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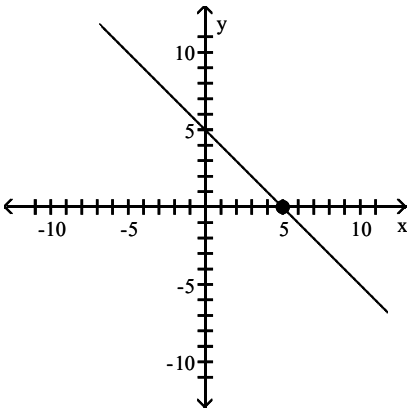
A)



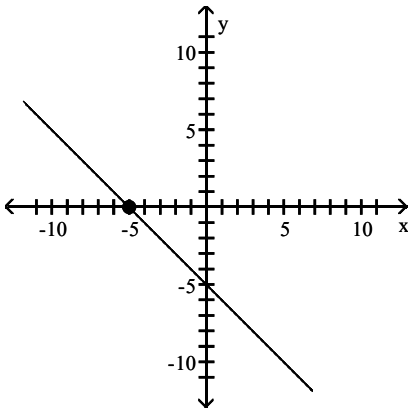
B)



C)

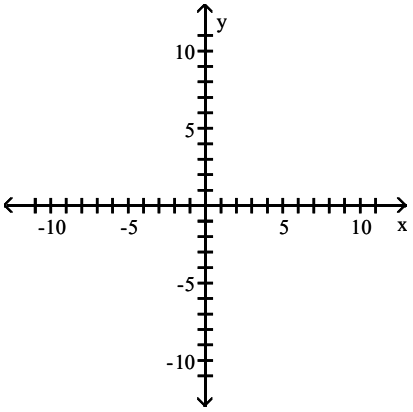


D)



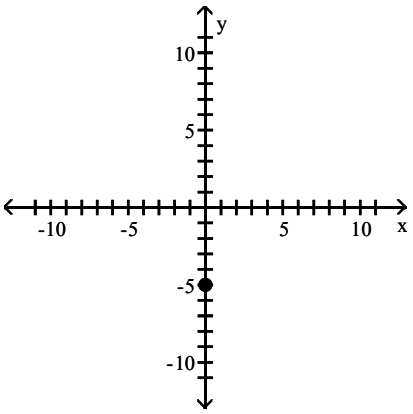
Answer: A

132) P = (5, 0); m = – 1

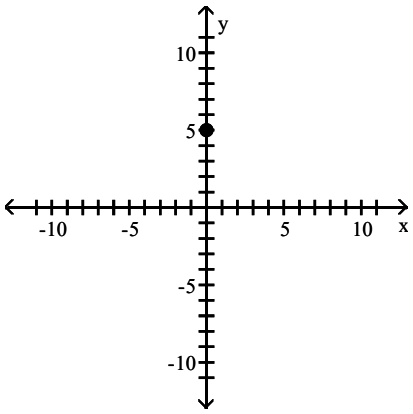


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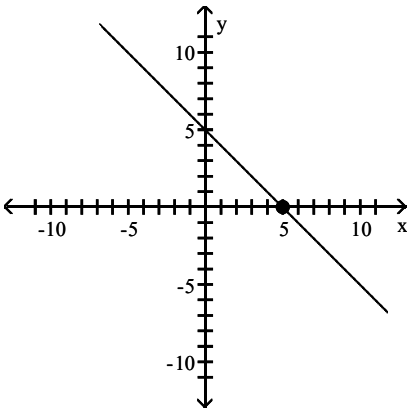
A)



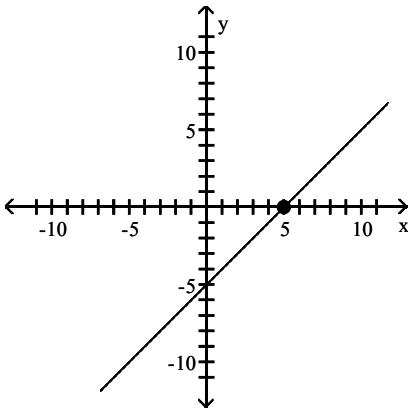
B)



C)

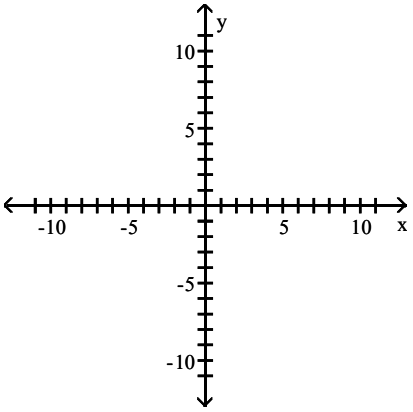


D)



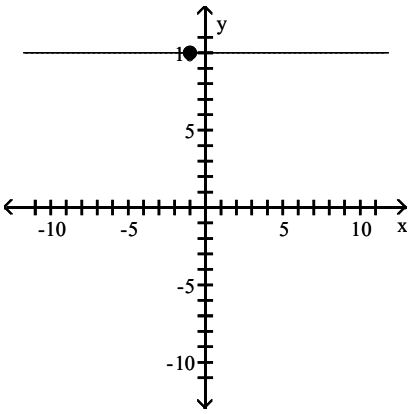
Answer: C

133) P = (–1, –10); m = 0

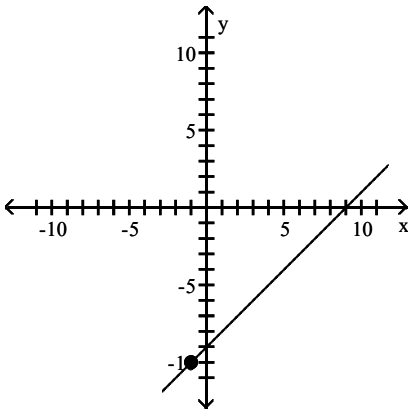


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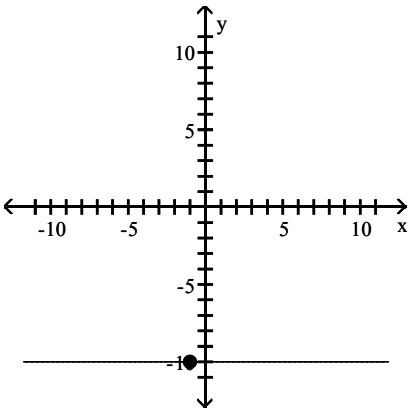
A)



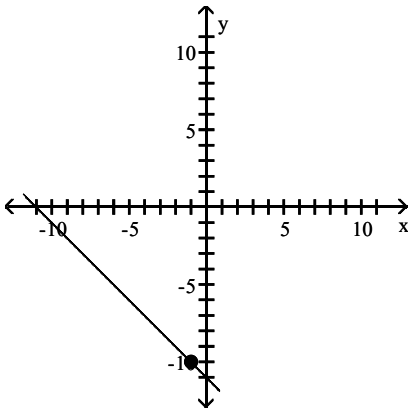
B)



C)

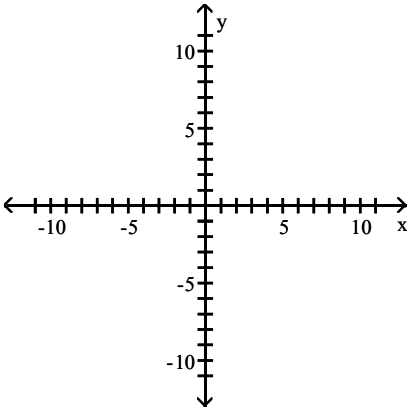


D)



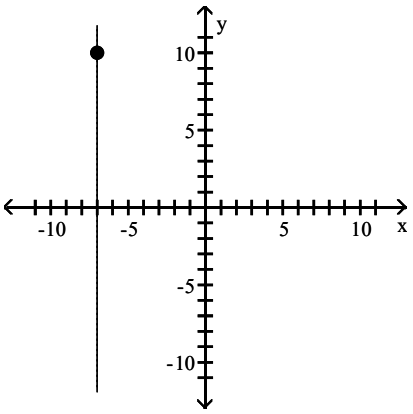
Answer: C

134) P = (10, –7); slope undefined

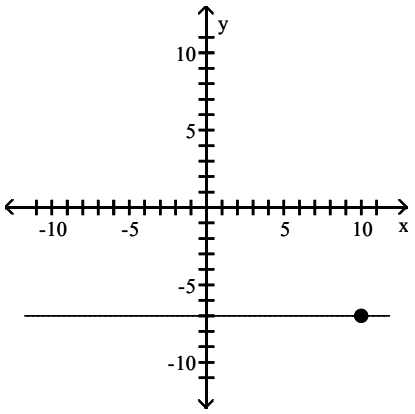


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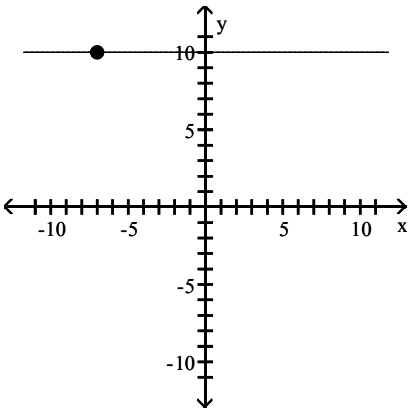
A)



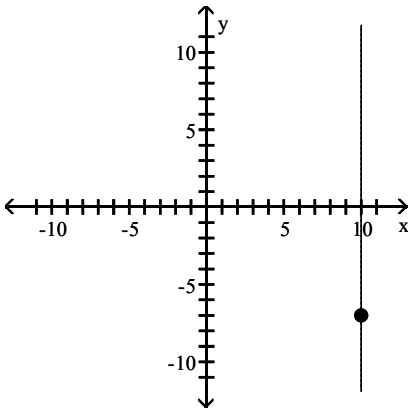
B)



C)



D)



Answer: D

Find an equation for the line with the given properties.

135) Slope undefined; containing the point (2, –5)

A) $y = -5$ B) $y = 2$ C) $x = 2$ D) $x = -5$

Answer: C

136) Vertical line; containing the point (10, –9)

A) $y = -9$ B) $x = 10$ C) $y = 10$ D) $x = -9$

Answer: B

137) Slope undefined; containing the point $\left(-\frac{5}{8}, 6\right)$

A) $y = 6$ B) $y = -\frac{5}{8}$ C) $x = 6$ D) $x = -\frac{5}{8}$

Answer: D

138) Vertical line; containing the point (–6.2, 8.7)

A) $x = 0$ B) $x = -6.2$ C) $x = 8.7$ D) $x = 2.5$

Answer: B

Find the slope–intercept form of the equation of the line with the given properties.

139) Horizontal; containing the point (–8, 10)

A) $y = -8$ B) $x = -8$ C) $y = 10$ D) $x = 10$

Answer: C

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140) Slope = 0; containing the point (–8, 7)

A) $x = -8$ B) $x = 7$ C) $y = -8$ D) $y = 7$

Answer: D

141) Horizontal; containing the point $\left(-\frac{1}{2}, 2\right)$

A) $y = 0$ B) $y = -2$ C) $y = 2$ D) $y = -\frac{1}{2}$

Answer: C

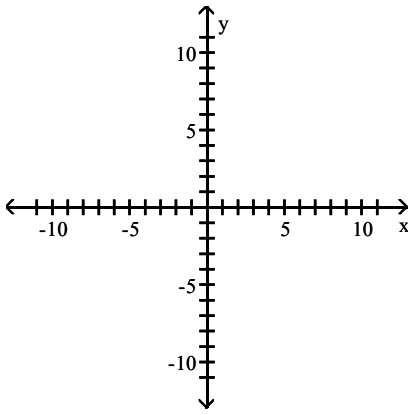
142) Horizontal; containing the point (–7.7, 1.8)

A) $y = -7.7$ B) $y = 5.9$ C) $y = 0$ D) $y = 1.8$

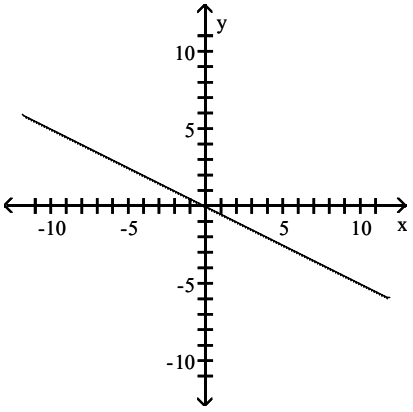
Answer: D

Find the slope of the line and sketch its graph.

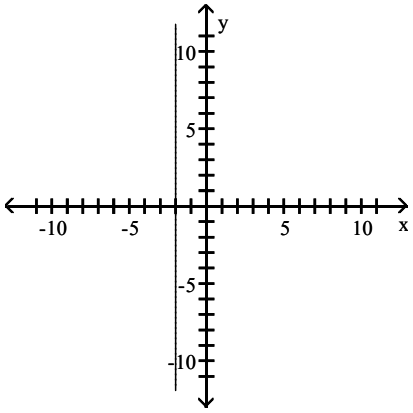
143) $y + 2 = 0$



A) slope $= -\frac{1}{2}$

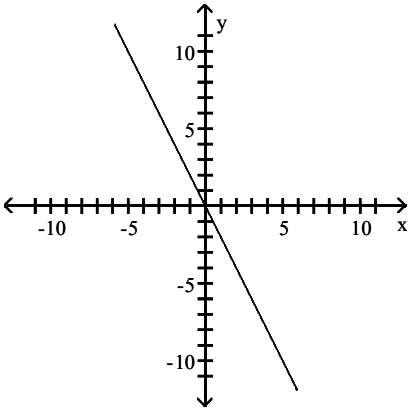


B) slope is undefined

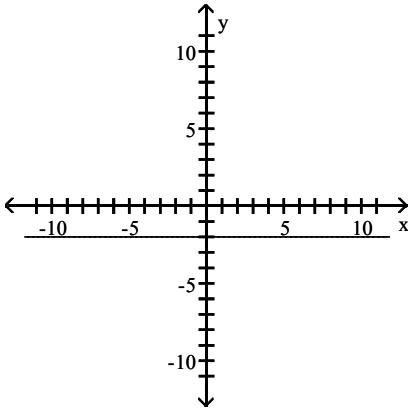


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C) slope = –2



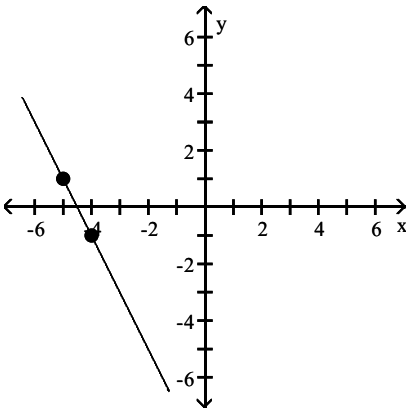
D) slope = 0



Answer: D

Find the equation of the line in slope–intercept form.

144)



A) $y = -2x - 3$ B) $y = -\frac{1}{2}x - \frac{2}{3}$ C) $y = -2x + 9$ D) $y = -2x - 9$

Answer: D

Find an equation for the line, in the indicated form, with the given properties.

145) Containing the points (6, –6) and (7, 3); slope–intercept form

A) $y = mx - 60$ B) $y + 6 = 9(x - 6)$ C) $y = -9x - 60$ D) $y = 9x - 60$

Answer: D

146) Containing the points (7, –4) and (–5, 9); general form

A) $13x + 12y = 43$ B) $-13x + 12y = 43$ C) $11x - 14y = -71$ D) $-11x + 14y = -71$

Answer: A

147) Containing the points (6, 0) and (0, –5); general form

A) $5x - 6y = 30$ B) $y = -\frac{5}{6}x - 5$ C) $5x + 6y = 30$ D) $y = -\frac{5}{6}x + 6$

Answer: A

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148) Containing the points (–3, 9) and (0, –7); general form

A) $12x - 7y = -49$ B) $16x - 3y = 21$ C) $-16x - 3y = 21$ D) $-12x + 7y = -49$

Answer: C

149) Containing the points (3, 0) and (0, –7); general form

A) $3x + 7y = -49$ B) $-7x + 3y = -21$ C) $-3x - 7y = -49$ D) $7x + 3y = -21$

Answer: B

150) Containing the points (7, 0) and (2, –6); general form

A) $-6x + 5y = -42$ B) $6x + 5y = -42$ C) $7x + 8y = -62$ D) $-7x - 8y = -62$

Answer: A

151) Containing the points (–6, 6) and (–1, –7); general form

A) $-12x + 6y = -54$ B) $12x - 6y = -54$ C) $13x - 5y = 48$ D) $-13x - 5y = 48$

Answer: D

Solve.

152) The relationship between Celsius (°C) and Fahrenheit (°F) degrees of measuring temperature is linear. Find an equation relating °C and °F if 10°C corresponds to 50°F and 30°C corresponds to 86°F. Use the equation to find the Celsius measure of 18° F.

A) $C = \frac{9}{5}F - 80;\ -\frac{238}{5}$ °C

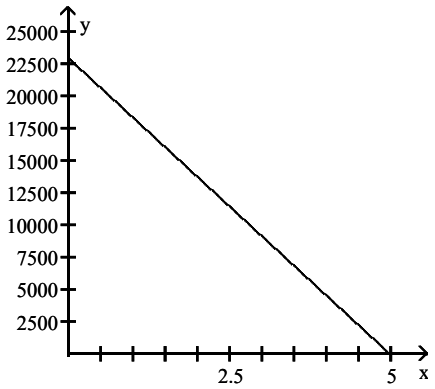
B) $C = \frac{5}{9}F - \frac{160}{9};\ -\frac{70}{9}$ °C

C) $C = \frac{5}{9}F + \frac{160}{9};\ \frac{250}{9}$ °C

D) $C = \frac{5}{9}F - 10;\ 0$ °C

Answer: B

153) A school has just purchased new computer equipment for $23,000.00. The graph shows the depreciation of the equipment over 5 years. The point (0, 23,000) represents the purchase price and the point (5, 0) represents when the equipment will be replaced. Write a linear equation in slope–intercept form that relates the value of the equipment, y, to years after purchase x . Use the equation to predict the value of the equipment after 1 years.



A) $y = -4600x + 23{,}000$;
value after 1 years is $18,400.00;

B) $y = 23{,}000x + 5$;
value after 1 years is $18,400.00

C) $y = -23{,}000x + 23{,}000$;
value after 1 years is $0.00

D) $y = 4600x - 23{,}000$;
value after 1 years is $18,400.00

Answer: A

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154) The average value of a certain type of automobile was $15,960 in 1991 and depreciated to $7440 in 1994. Let y be the average value of the automobile in the year x, where x = 0 represents 1991. Write a linear equation that relates the average value of the automobile, y, to the year x.

A) $y = -2840x - 1080$ B) $y = -2840x + 15{,}960$ C) $y = -2840x + 7440$ D) $y = -\frac{1}{2840}x - 7440$

Answer: B

155) An investment is worth $2629 in 1991. By 1995 it has grown to $4121. Let y be the value of the investment in the year x, where x = 0 represents 1991. Write a linear equation that relates the value of the investment, y, to the year x.

A) $y = -373x + 5613$ B) $y = 373x + 2629$ C) $y = \frac{1}{373}x + 2629$ D) $y = -373x + 2629$

Answer: B

156) A faucet is used to add water to a large bottle that already contained some water. After it has been filling for 3 seconds, the gauge on the bottle indicates that it contains 9 ounces of water. After it has been filling for 10 seconds, the gauge indicates the bottle contains 23 ounces of water. Let y be the amount of water in the bottle x seconds after the faucet was turned on. Write a linear equation that relates the amount of water in the bottle,y, to the time x.

A) $y = 2x + 3$ B) $y = 2x + 13$ C) $y = -2x + 15$ D) $y = \frac{1}{2}x + \frac{15}{2}$

Answer: A

157) When making a telephone call using a calling card, a call lasting 5 minutes cost $0.85. A call lasting 13 minutes cost $1.65. Let y be the cost of making a call lasting x minutes using a calling card. Write a linear equation that relates the cost of a making a call, y, to the time x.

A) $y = 10x - \frac{983}{20}$ B) $y = 0.1x + 0.35$ C) $y = 0.1x - 11.35$ D) $y = -0.1x + 1.35$

Answer: B

158) A vendor has learned that, by pricing pretzels at $1.75, sales will reach 113 pretzels per day. Raising the price to $2.50 will cause the sales to fall to 83 pretzels per day. Let y be the number of pretzels the vendor sells at x dollars each. Write a linear equation that relates the number of pretzels sold per day, y, to the price x.

A) $y = -40x + 183$ B) $y = 40x + 43$ C) $y = -\frac{1}{40}x + \frac{18073}{160}$ D) $y = -40x - 183$

Answer: A

159) A vendor has learned that, by pricing caramel apples at $1.00, sales will reach 119 caramel apples per day. Raising the price to $1.75 will cause the sales to fall to 83 caramel apples per day. Let y be the number of caramel apples the vendor sells at x dollars each. Write a linear equation that relates the number of caramel apples sold per day to the price x.

A) $y = -48x - 167$ B) $y = 48x + 71$ C) $y = -48x + 167$ D) $y = -\frac{1}{48}x + \frac{5711}{48}$

Answer: C

Find the slope–intercept form of the equation of the line with the given properties.

160) Slope = 6; containing the point (–2, –7)

A) $y = -6x - 5$ B) $y = 6x + 5$ C) $y = -6x + 5$ D) $y = 6x - 5$

Answer: B

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161) Slope = 0; containing the point (–8, –6)

A) $x = -8$ B) $x = -6$ C) $y = -6$ D) $y = -8$

Answer: C

162) Slope = 9; y–intercept = 20

A) $y = 9x + 20$ B) $y = 20x + 9$ C) $y = 20x - 9$ D) $y = 9x - 20$

Answer: A

163) x–intercept = 5; y–intercept = 8

A) $y = -\frac{8}{5}x + 8$ B) $y = \frac{8}{5}x + 8$ C) $y = -\frac{5}{8}x + 5$ D) $y = -\frac{8}{5}x + 5$

Answer: A

Write the equation in slope–intercept form.

164) $5x + 8y = 5$

A) $y = \frac{5}{8}x + \frac{5}{8}$ B) $y = -\frac{5}{8}x + \frac{5}{8}$ C) $y = 5x - 5$ D) $y = \frac{5}{8}x - \frac{5}{8}$

Answer: B

165) $6x + 7y = 1$

A) $y = 6x + 12$ B) $y = \frac{12}{7}x + \frac{1}{7}$ C) $y = \frac{7}{6}x - \frac{1}{6}$ D) $y = \frac{6}{7}x + \frac{1}{7}$

Answer: D

166) $4x - 5y = 1$

A) $y = \frac{4}{5}x + \frac{1}{5}$ B) $y = 4x - 1$ C) $y = \frac{5}{4}x + \frac{1}{4}$ D) $y = \frac{4}{5}x - \frac{1}{5}$

Answer: D

167) $x = 6y + 5$

A) $y = \frac{1}{6}x - \frac{5}{6}$ B) $y = \frac{1}{6}x - 5$ C) $y = x - \frac{5}{6}$ D) $y = 6x - 5$

Answer: A

Solve.

168) A truck rental company rents a moving truck one day by charging \$35 plus \$0.11 per mile. Write a linear equation that relates the cost C, in dollars, of renting the truck to the number x of miles driven. What is the cost of renting the truck if the truck is driven 220 miles?

A) $C = 0.11x - 35$; \$10.80 B) $C = 0.11x + 35$; \$59.20

C) $C = 0.11x + 35$; \$37.42 D) $C = 35x + 0.11$; \$7700.11

Answer: B

169) Each week a soft drink machine sells x cans of soda for \$0.75/soda. The cost to the owner of the soda machine for each soda is \$0.10. The weekly fixed cost for maintaining the soda machine is \$25/week. Write an equation that relates the weekly profit, P, in dollars to the number of cans sold each week. Then use the equation to find the weekly profit when 92 cans of soda are sold in a week.

A) $P = 0.75x - 25$; \$44.00 B) $P = 0.75x + 25$; \$94.00

C) $P = 0.65x + 25$; \$84.80 D) $P = 0.65x - 25$; \$34.80

Answer: D

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170) Each day the commuter train transports x passengers to or from the city at $1.75/passenger. The daily fixed cost for running the train is $1200. Write an equation that relates the daily profit, P, in dollars to the number of passengers each day. Then use the equation to find the daily profit when the train has 920 passengers in a day.

A) P = 1200 – 1.75x; $410
B) P = 1.75x – 1200; $410
C) P = 1.75x + 1200; $2810
D) P = 1.75x; $1610

Answer: B

171) Each month a beauty salon gives x manicures for $12.00/manicure. The cost to the owner of the beauty salon for each manicure is $7.35. The monthly fixed cost to maintain a manicure station is $120.00. Write an equation that relates the monthly profit, in dollars, to the number of manicures given each month. Then use the equation to find the monthly profit when 200 manicures are given in a month.

A) P =12x – 120; $2280
B) P = 7.35x – 120; $1350
C) P = 4.65x; $930
D) P = 4.65x – 120; $810

Answer: D

172) Each month a gas station sells x gallons of gas at $1.92/gallon. The cost to the owner of the gas station for each gallon of gas is $1.32. The monthly fixed cost for running the gas station is $37,000. Write an equation that relates the monthly profit, in dollars, to the number of gallons of gasoline sold. Then use the equation to find the monthly profit when 75,000 gallons of gas are sold in a month.

A) P = 0.60x + 37,000; $82,000
B) P = 1.32x – 37,000; $62,000
C) P = 1.92x – 37,000; $107,000
D) P = 0.60x – 37,000; $8000

Answer: D

Find the slope and y–intercept of the line.

173) y = 2x + 3

A) slope = – 2; y–intercept = – 3
B) slope = 3; y–intercept = 2
C) slope = $\frac{1}{2}$; y–intercept = – 3
D) slope = 2; y–intercept = 3

Answer: D

174) x + y = –12

A) slope = 0; y–intercept = –12
B) slope = –1; y–intercept = 12
C) slope = –1; y–intercept = –12
D) slope = 1; y–intercept = –12

Answer: C

175) 3x + y = –10

A) slope = $-\frac{3}{10}$; y–intercept = $-\frac{1}{10}$
B) slope = $-\frac{1}{3}$; y–intercept = $-\frac{10}{3}$
C) slope = 3; y–intercept = –10
D) slope = –3; y–intercept = –10

Answer: D

176) –5x + 7y = 1

A) slope = $\frac{7}{5}$; y–intercept = $-\frac{1}{5}$
B) slope = $\frac{13}{7}$; y–intercept = $\frac{1}{7}$
C) slope = 5; y–intercept = 13
D) slope = $\frac{5}{7}$; y–intercept = $\frac{1}{7}$

Answer: D

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177) $7x + 4y = 11$

A) slope $= \frac{7}{4}$; y–intercept $= \frac{11}{4}$

B) slope $= 7$; y–intercept $= 11$

C) slope $= -\frac{7}{4}$; y–intercept $= \frac{11}{4}$

D) slope $= \frac{7}{4}$; y–intercept $= -\frac{11}{4}$

Answer: C

178) $4x - 3y = 1$

A) slope $= 4$; y–intercept $= 1$

B) slope $= \frac{3}{4}$; y–intercept $= \frac{1}{4}$

C) slope $= \frac{4}{3}$; y–intercept $= \frac{1}{3}$

D) slope $= \frac{4}{3}$; y–intercept $= -\frac{1}{3}$

Answer: D

179) $7x - 6y = 42$

A) slope $= -\frac{7}{6}$; y–intercept $= 7$

B) slope $= \frac{6}{7}$; y–intercept $= 6$

C) slope $= 7$; y–intercept $= 42$

D) slope $= \frac{7}{6}$; y–intercept $= -7$

Answer: D

180) $x + 14y = 1$

A) slope $= -14$; y–intercept $= 14$

B) slope $= 1$; y–intercept $= 1$

C) slope $= -\frac{1}{14}$; y–intercept $= \frac{1}{14}$

D) slope $= \frac{1}{14}$; y–intercept $= \frac{1}{14}$

Answer: C

181) $-x + 5y = 15$

A) slope $= \frac{1}{5}$; y–intercept $= 3$

B) slope $= 5$; y–intercept $= -15$

C) slope $= -\frac{1}{5}$; y–intercept $= 3$

D) slope $= -1$; y–intercept $= 15$

Answer: A

182) $y = 10$

A) slope $= 0$; y–intercept $= 10$

B) slope $= 10$; y–intercept $= 0$

C) slope $= 0$; no y–intercept

D) slope $= 1$; y–intercept $= 10$

Answer: A

183) $x = 2$

A) slope $= 0$; y–intercept $= 2$

B) slope undefined; no y–intercept

C) slope $= 2$; y–intercept $= 0$

D) slope undefined; y–intercept $= 2$

Answer: B

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184) $y = -4x$

A) slope $= -\frac{1}{4}$; y–intercept $= 0$

B) slope $= 0$; y–intercept $= -4$

C) slope $= 4$; y–intercept $= 0$

D) slope $= -4$; y–intercept $= 0$

Answer: D

Find the general form of the equation for the line with the given properties.

185) Slope $= \frac{3}{4}$; y–intercept $= \frac{3}{4}$

A) $3x + 4y = -3$

B) $3x - 4y = -3$

C) $y = \frac{3}{4}x + \frac{3}{4}$

D) $y = \frac{3}{4}x - \frac{3}{4}$

Answer: B

186) Slope $= -\frac{3}{5}$; containing the point $(2, 5)$

A) $3x + 5y = -31$

B) $3x + 5y = 31$

C) $5x + 3y = -31$

D) $3x - 5y = 31$

Answer: B

187) Slope $= -\frac{3}{4}$; containing the point $(0, 4)$

A) $4x + 3y = -16$

B) $3x + 4y = 16$

C) $3x - 4y = 16$

D) $3x + 4y = -16$

Answer: B

188) Slope $= \frac{3}{4}$; containing $(0, 4)$

A) $4x - 3y = -16$

B) $-3x - 4y = 16$

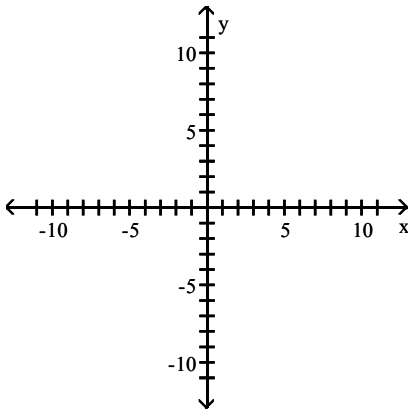
C) $-3x + 4y = 16$

D) $-3x + 4y = -16$

Answer: C

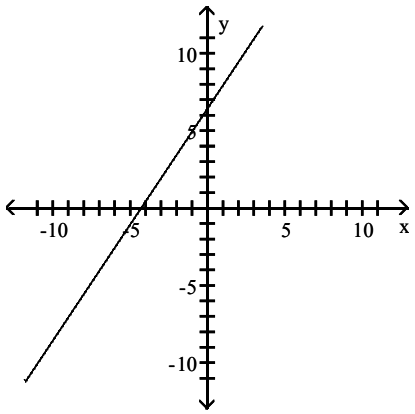
Find the slope of the line and sketch its graph.

189) $2x + 3y = 13$

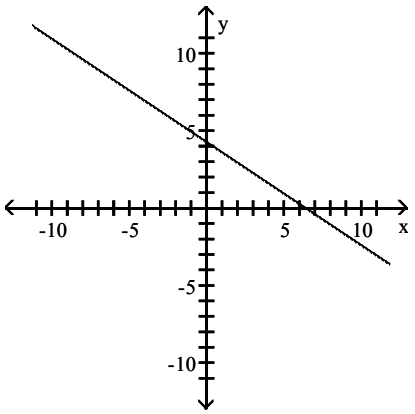


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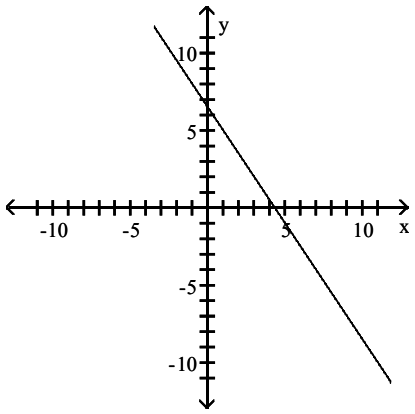
A) slope = $\frac{3}{2}$



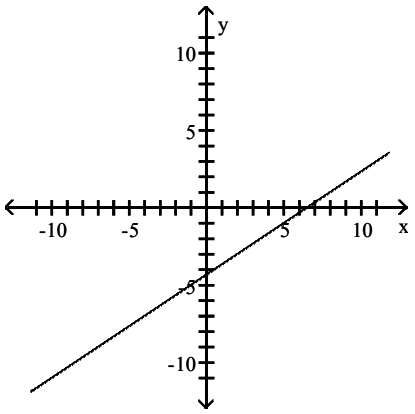
B) slope = $-\frac{2}{3}$



C) slope = $-\frac{3}{2}$

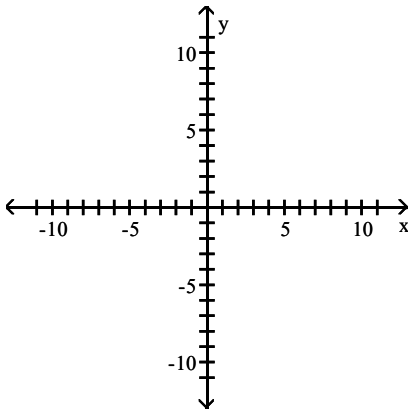


D) slope = $\frac{2}{3}$



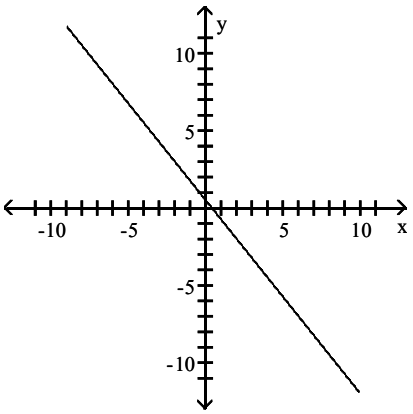
Answer: B

190) $4x - 5y = 2$

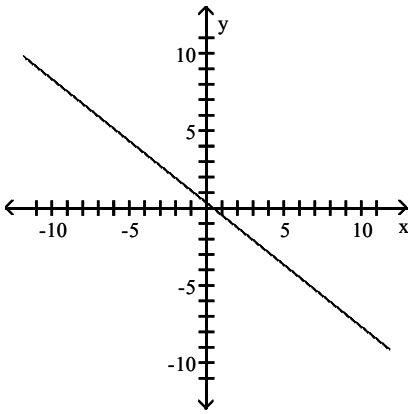


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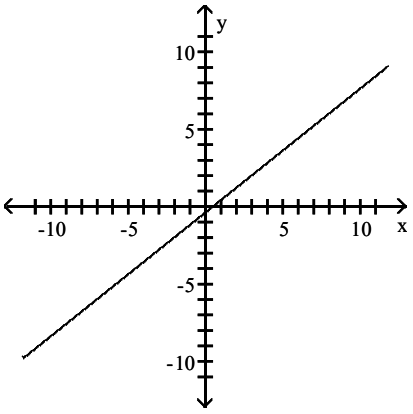
A) slope $= -\frac{5}{4}$



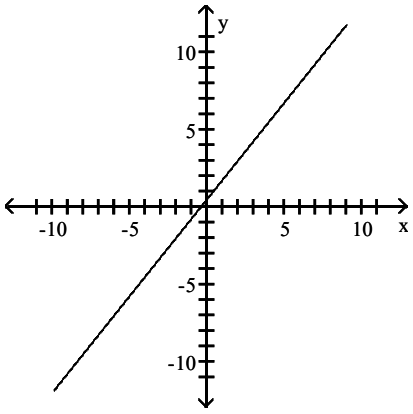
B) slope $= -\frac{4}{5}$



C) slope $= \frac{4}{5}$



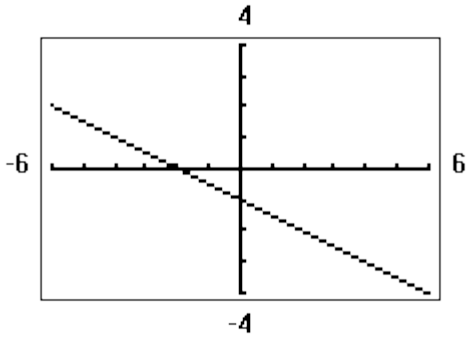
D) slope $= \frac{5}{4}$



Answer: C

Solve the problem.

191) Find an equation in general form for the line graphed on a graphing utility.



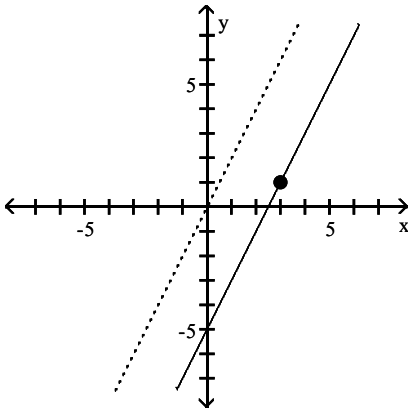
A) $x + 2y = -2$ B) $2x + y = -1$ C) $y = -\frac{1}{2}x - 1$ D) $y = -2x - 1$

Answer: A

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Find an equation for the line with the given properties.

192) The solid line L contains the point (3, 1) and is parallel to the dotted line whose equation is y = 2x. Give the equation for the line L in slope–intercept form.



A) y = 2x + b B) y = 2x – 5 C) y = 2x – 2 D) y – 1 = 2(x – 3)

Answer: B

193) Parallel to the line y = 3x; containing the point (6, 8)

A) y – 8 = 3x – 6 B) y = 3x – 10 C) y = 3x D) y = 3x + 10

Answer: B

194) Parallel to the line x – 3y = 6; containing the point (0, 0)

A) $y = -\frac{1}{3}x$ B) $y = \frac{1}{3}x$ C) $y = \frac{1}{3}x + 6$ D) $y = -\frac{5}{3}$

Answer: B

195) Parallel to the line –2x – y = 2; containing the point (0, 0)

A) $y = -\frac{1}{2}x$ B) $y = \frac{1}{2}x + 2$ C) $y = \frac{1}{2}x$ D) y = –2x

Answer: D

196) Parallel to the line y = 3; containing the point (6, 4)

A) y = 6 B) y = 3 C) y = 4 D) y = –4

Answer: C

197) Parallel to the line x = 8; containing the point (2, 5)

A) x = 5 B) y = 5 C) x = 2 D) y = 8

Answer: C

198) Parallel to the line 5x + 3y = 14; containing the point (4, –6)

A) 3x + 5y = –6 B) 4x + 3y = 14 C) 5x – 3y = 2 D) 5x + 3y = 2

Answer: D

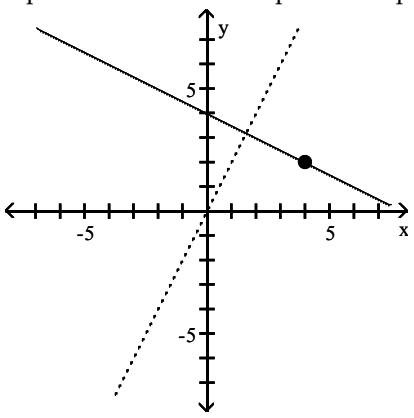
199) Parallel to the line 5x – 2y = –2; x–intercept = –6

A) –2x – 5y = 12 B) 5x – 2y = –30 C) –2x – 5y = 30 D) 5x – 2y = 12

Answer: B

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200) The solid line L contains the point (4, 2) and is perpendicular to the dotted line whose equation is y = 2x. Give the equation of line L in slope–intercept form.



A) $y = -\frac{1}{2}x + 4$ B) $y - 2 = 2(x - 4)$ C) $y = \frac{1}{2}x + 4$ D) $y - 2 = -\frac{1}{2}(x - 4)$

Answer: A

201) Perpendicular to the line $y = -2x - 4$; containing the point (–3, 1)

A) $y = -\frac{1}{2}x + \frac{5}{2}$ B) $y = -2x + \frac{5}{2}$ C) $y = \frac{1}{2}x + \frac{5}{2}$ D) $y = 2x + \frac{5}{2}$

Answer: C

202) Perpendicular to the line $y = \frac{1}{9}x + 3$; containing the point (2, –4)

A) $y = -\frac{1}{9}x - \frac{14}{9}$ B) $y = -9x - 14$ C) $y = 9x - 14$ D) $y = -9x + 14$

Answer: D

203) Perpendicular to the line $-3x - y = 6$; containing the point (0, – 2)

A) $y = -\frac{1}{3}x - 2$ B) $y = \frac{1}{3}x + 6$ C) $y = \frac{1}{3}x - 2$ D) $y = -\frac{5}{3}$

Answer: C

204) Perpendicular to the line $x - 8y = 7$; containing the point (2, 3)

A) $y = -8x - 19$ B) $y = -\frac{1}{8}x - \frac{19}{8}$ C) $y = 8x - 19$ D) $y = -8x + 19$

Answer: D

205) Perpendicular to the line $y = -7$; containing the point (6, 8)

A) $x = 8$ B) $y = 8$ C) $y = 6$ D) $x = 6$

Answer: D

206) Perpendicular to the line $x = -9$; containing the point (1, 8)

A) $y = 8$ B) $x = 8$ C) $x = 1$ D) $y = 1$

Answer: A

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207) Perpendicular to the line $6x - 7y = 16$; containing the point $(5, -2)$

A) $7x - 6y = 23$ B) $7x + 6y = 23$ C) $5x + 7y = 16$ D) $6x + 7 = 6$

Answer: B

208) Perpendicular to the line $8x + 9y = 84$; containing the point $(6, 1)$

A) $9x - 8y = 46$ B) $9x + 8y = 84$ C) $9x + 8y = 46$ D) $8x - 9y = 46$

Answer: A

209) Perpendicular to the line $3x + 5y = 2$; y–intercept = 3

A) $5x - 3y = 15$ B) $3x + 5y = 15$ C) $5x - 3y = -9$ D) $3x + 5y = 9$

Answer: C

Decide whether the pair of lines is parallel, perpendicular, or neither.

210) $3x - 4y = -8$
$8x + 6y = -17$

A) parallel B) perpendicular C) neither

Answer: B

211) $3x - 8y = 18$
$32x + 12y = 1$

A) parallel B) perpendicular C) neither

Answer: B

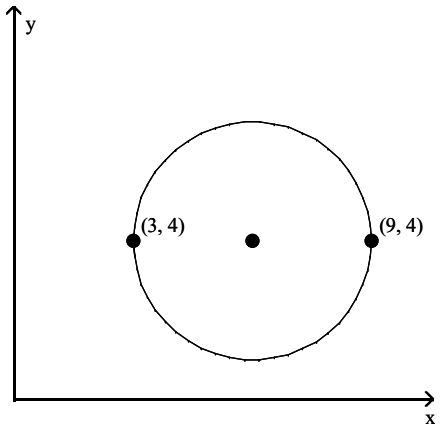
212) $9x + 3y = 12$
$27x + 9y = 38$

A) parallel B) perpendicular C) neither

Answer: A

Write the standard form of the equation of the circle.

213)



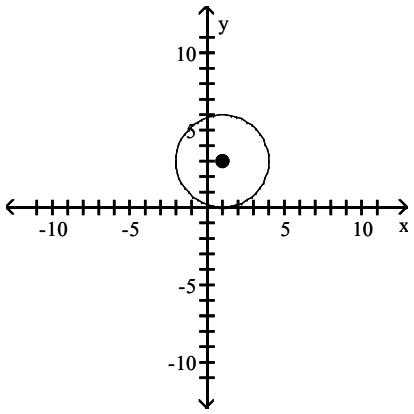
A) $(x - 6)^2 + (y - 4)^2 = 9$ B) $(x + 6)^2 + (y + 4)^2 = 9$

C) $(x - 6)^2 + (y - 4)^2 = 3$ D) $(x + 6)^2 + (y + 4)^2 = 3$

Answer: A

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214)



A) $(x + 3)^2 + (y + 1)^2 = 9$
B) $(x - 1)^2 + (y - 3)^2 = 9$
C) $(x + 1)^2 + (y + 3)^2 = 9$
D) $(x - 3)^2 + (y - 1)^2 = 9$

Answer: B

Write the standard form of the equation of the circle with radius r and center (h, k).

215) $r = 4$; $(h, k) = (0, 0)$

A) $x^2 + y^2 = 16$
B) $(x - 4)^2 + (y - 4)^2 = 16$
C) $(x - 4)^2 + (y - 4)^2 = 4$
D) $x^2 + y^2 = 4$

Answer: A

216) $r = 2$; $(h, k) = (-4, 1)$

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

Answer: C

217) $r = 4$; $(h, k) = (4, 0)$

A) $x^2 + (y + 4)^2 = 4$
B) $(x - 4)^2 + y^2 = 16$
C) $(x + 4)^2 + y^2 = 16$
D) $x^2 + (y - 4)^2 = 4$

Answer: B

218) $r = 10$; $(h, k) = (0, -7)$

A) $(x + 7)^2 + y^2 = 100$
B) $x^2 + (y - 7)^2 = 10$
C) $(x - 7)^2 + y^2 = 100$
D) $x^2 + (y + 7)^2 = 100$

Answer: D

219) $r = \sqrt{17}$; $(h, k) = (-1, 5)$

A) $(x + 5)^2 + (y - 1)^2 = 289$
B) $(x + 1)^2 + (y - 5)^2 = 17$
C) $(x - 1)^2 + (y + 5)^2 = 17$
D) $(x - 5)^2 + (y + 1)^2 = 289$

Answer: B

220) $r = \sqrt{14}$; $(h, k) = (0, 10)$

A) $(x + 10)^2 + y^2 = 196$
B) $x^2 + (y + 10)^2 = 14$
C) $x^2 + (y - 10)^2 = 14$
D) $(x - 10)^2 + y^2 = 196$

Answer: C

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Solve the problem.

221) Find the equation of a circle in standard form where C(6, –2) and D(–4, 4) are endpoints of a diameter.

A) $(x + 1)^2 + (y + 1)^2 = 136$ B) $(x - 1)^2 + (y - 1)^2 = 136$

C) $(x - 1)^2 + (y - 1)^2 = 34$ D) $(x + 1)^2 + (y + 1)^2 = 34$

Answer: C

222) Find the equation of a circle in standard form with center at the point (–3, 2) and tangent to the line y = 4.

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

C) $(x - 3)^2 + (y + 2)^2 = 16$ D) $(x + 3)^2 + (y - 2)^2 = 16$

Answer: B

223) Find the equation of a circle in standard form that is tangent to the line x = –3 at (–3, 5) and also tangent to the line x = 9.

A) $(x + 3)^2 + (y - 5)^2 = 36$ B) $(x - 3)^2 + (y + 5)^2 = 36$

C) $(x + 3)^2 + (y + 5)^2 = 36$ D) $(x - 3)^2 + (y - 5)^2 = 36$

Answer: D

Find the center (h, k) and radius r of the circle with the given equation.

224) $x^2 + y^2 = 9$

A) (h, k) = (0, 0); r = 3 B) (h, k) = (0, 0); r = 9 C) (h, k) = (3, 3); r = 9 D) (h, k) = (3, 3); r = 3

Answer: A

225) $(x + 10)^2 + (y - 2)^2 = 121$

A) (h, k) = (2, –10); r = 11 B) (h, k) = (2, –10); r = 121

C) (h, k) = (–10, 2); r = 121 D) (h, k) = (–10, 2); r = 11

Answer: D

226) $(x + 7)^2 + y^2 = 9$

A) (h, k) = (0, –7); r = 9 B) (h, k) = (–7, 0); r = 9

C) (h, k) = (–7, 0); r = 3 D) (h, k) = (0, –7); r = 3

Answer: C

227) $x^2 + (y + 3)^2 = 121$

A) (h, k) = (0, –3); r = 11 B) (h, k) = (–3, 0); r = 121

C) (h, k) = (0, –3); r = 121 D) (h, k) = (–3, 0); r = 11

Answer: A

228) $2(x + 5)^2 + 2(y + 4)^2 = 26$

A) (h, k) = (5, 4); $r = 2\sqrt{13}$ B) (h, k) = (–5, –4); $r = 2\sqrt{13}$

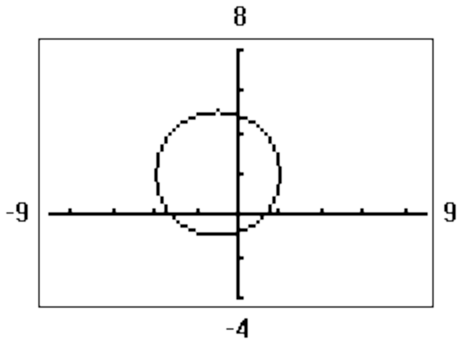
C) (h, k) = (5, 4); $r = \sqrt{13}$ D) (h, k) = (–5, –4); $r = \sqrt{13}$

Answer: D

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Solve the problem.

229) Find the standard form of the equation of the circle. Assume that the center has integer coordinates and the radius is an integer.



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

B) $x^2 + y^2 + 2x - 4y - 4 = 0$

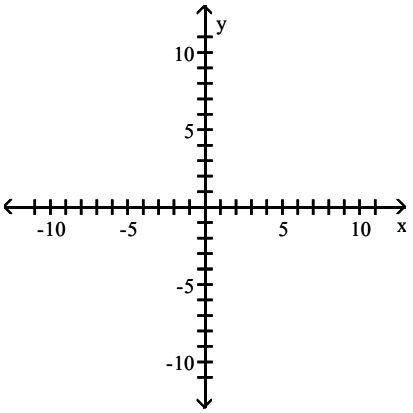
C) $x^2 + y^2 - 2x + 4y - 4 = 0$

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

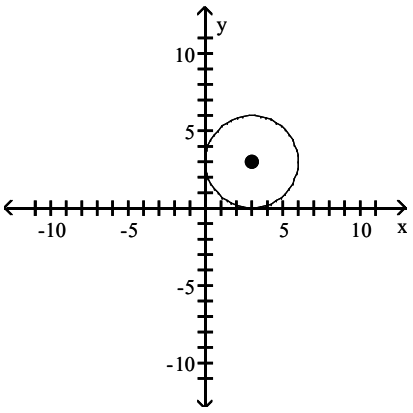
Answer: D

Graph the circle with radius r and center (h, k).

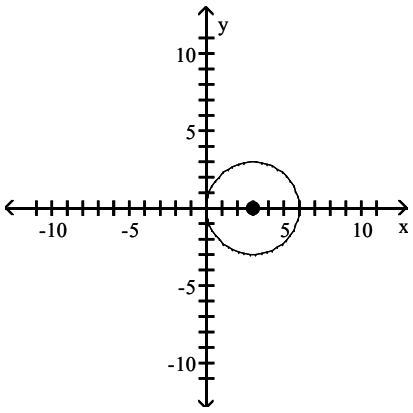
230) r = 3; (h, k) = (0, 0)



A)

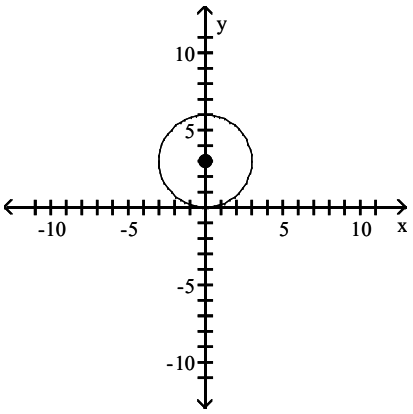


B)

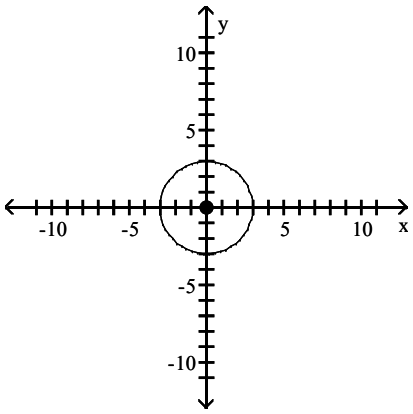


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C)

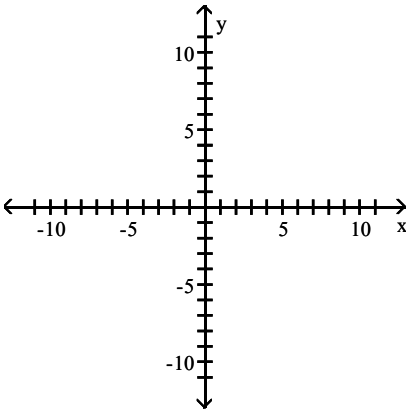


D)

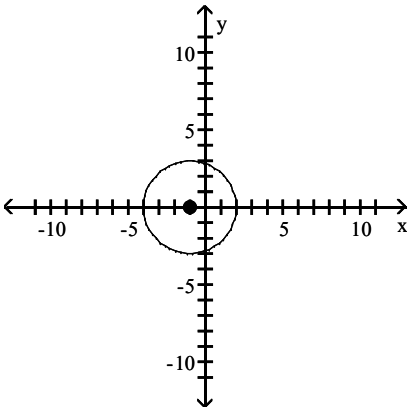


Answer: D

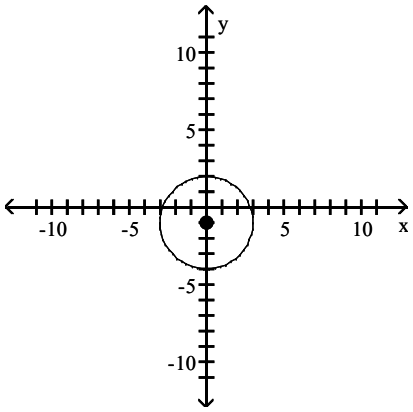
231) r = 3; (h, k) = (0, 1)



A)

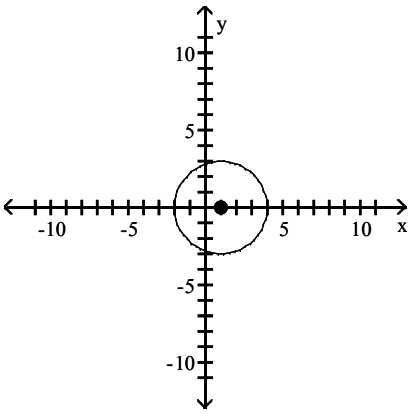


B)

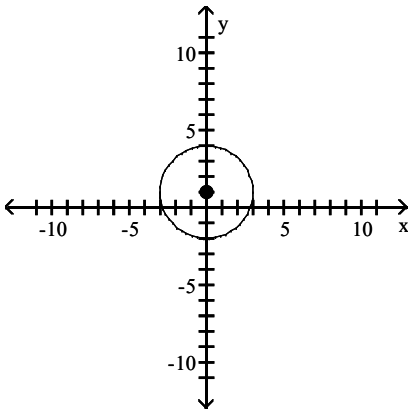


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C)

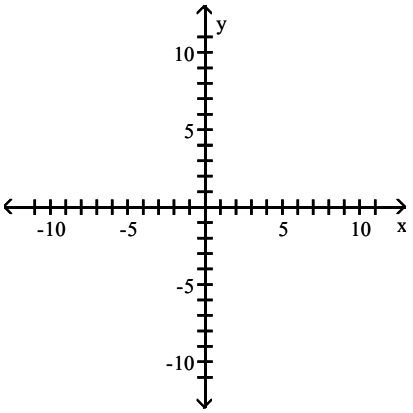


D)

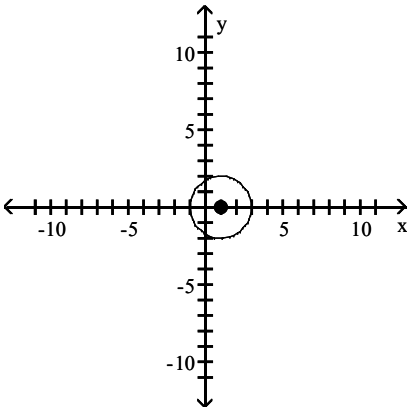


Answer: D

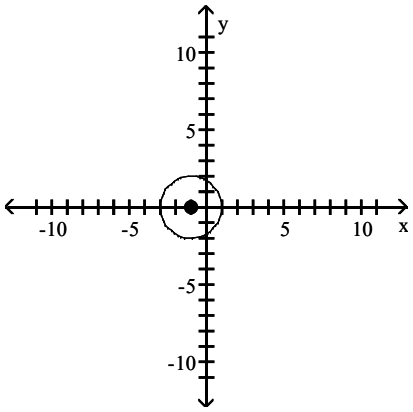
232) r = 2; (h, k) = (1, 0)



A)

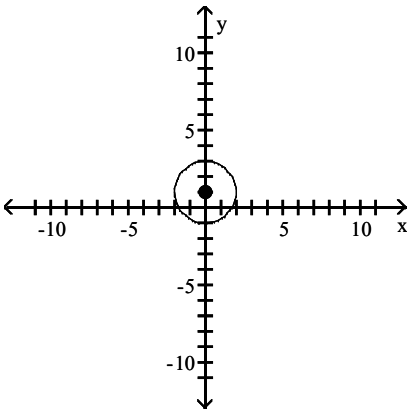


B)

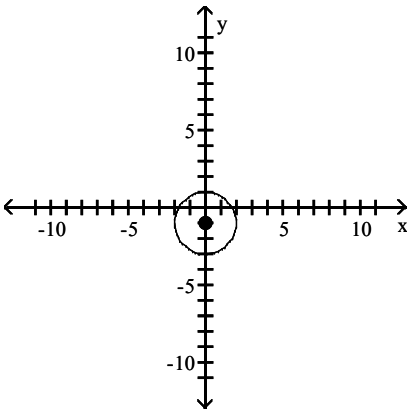


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C)

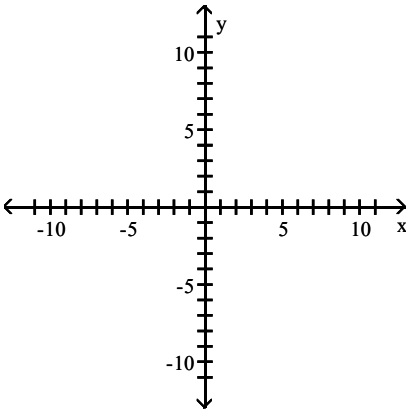


D)

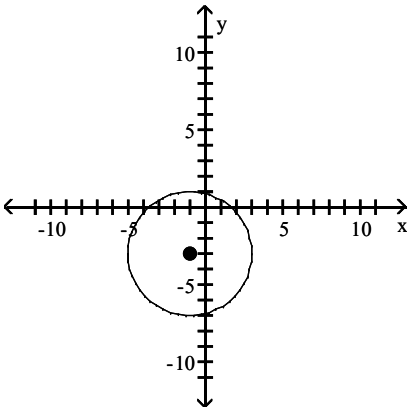


Answer: A

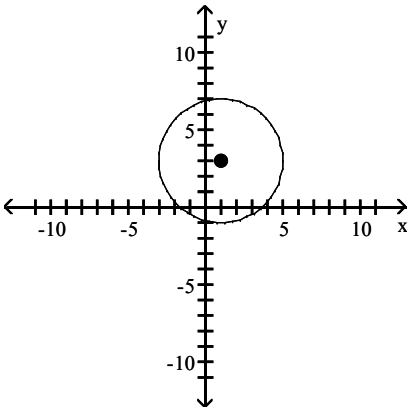
233) r = 4; (h, k) = (–1, 3)



A)

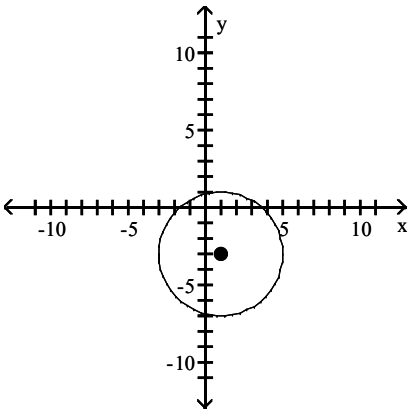


B)

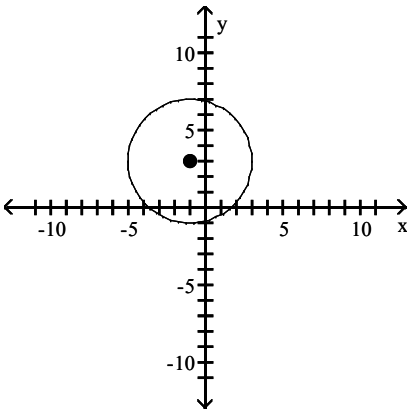


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C)



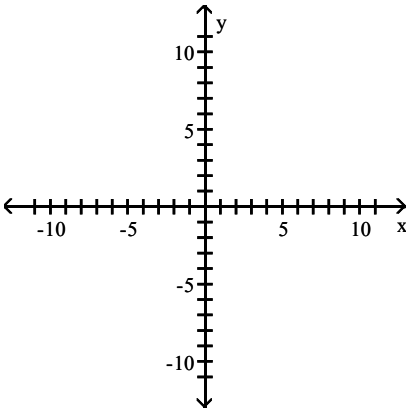
D)



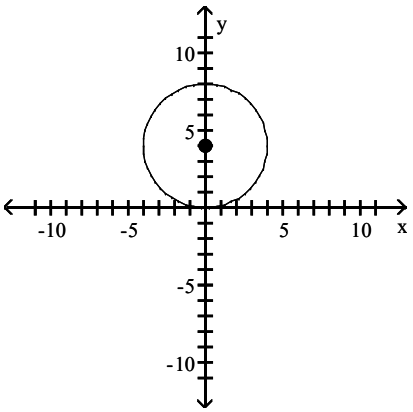
Answer: D

Graph the equation.

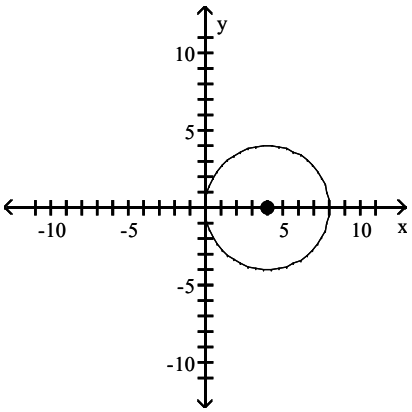
234) $x^2 + y^2 = 16$



A)

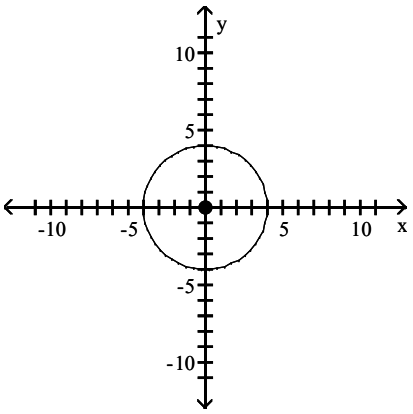


B)

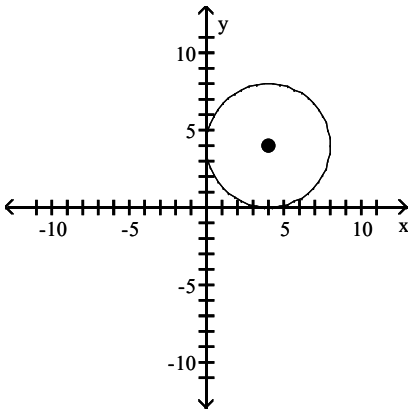


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C)

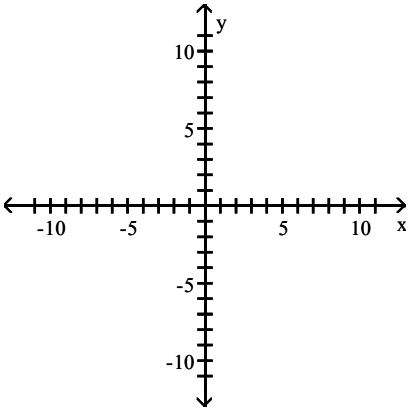


D)

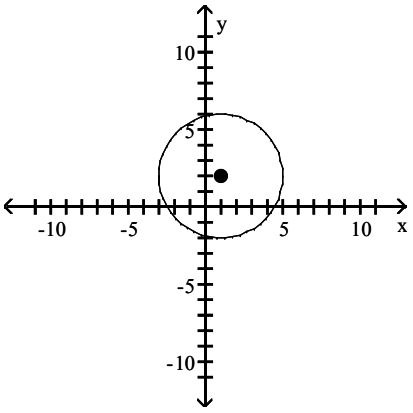


Answer: C

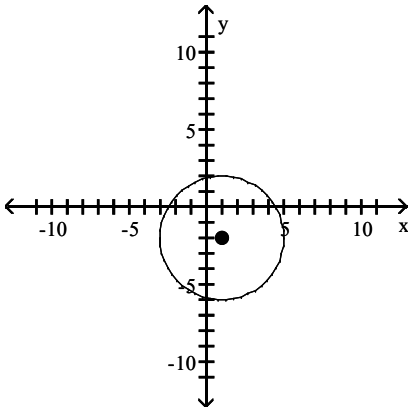
235) $(x - 1)^2 + (y - 2)^2 = 16$



A)

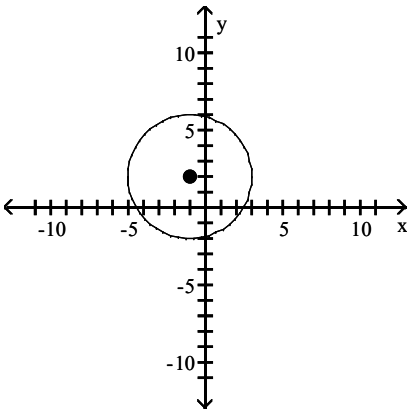


B)

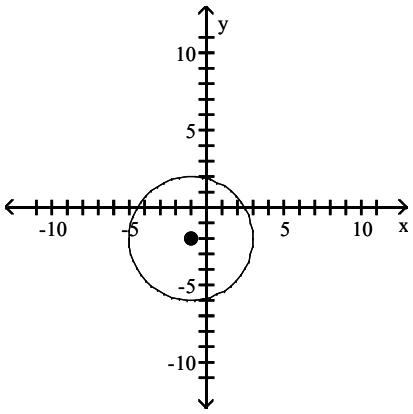


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C)

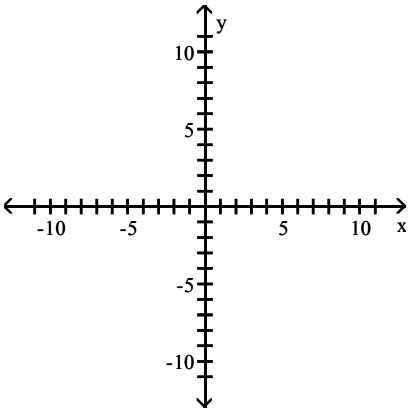


D)

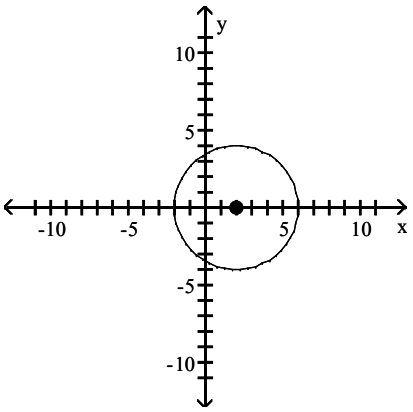


Answer: A

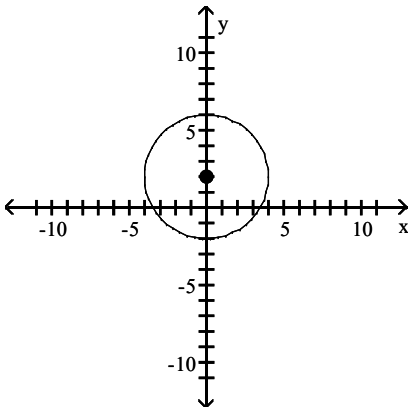
236) $x^2 + (y - 2)^2 = 16$



A)

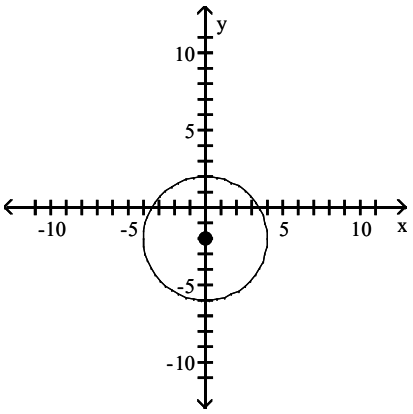


B)

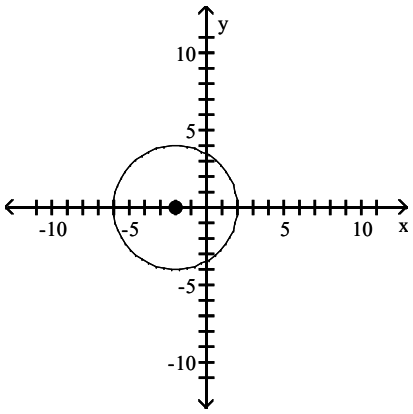


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C)

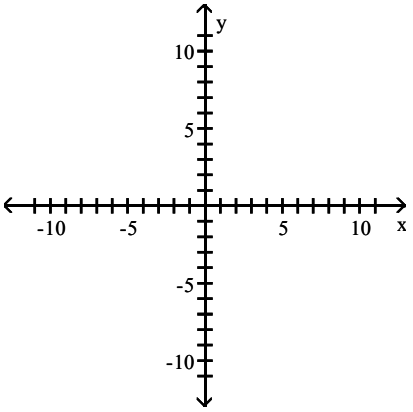


D)

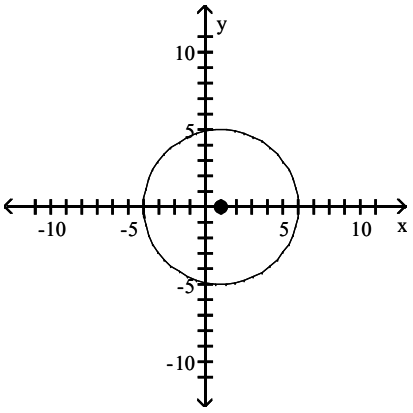


Answer: B

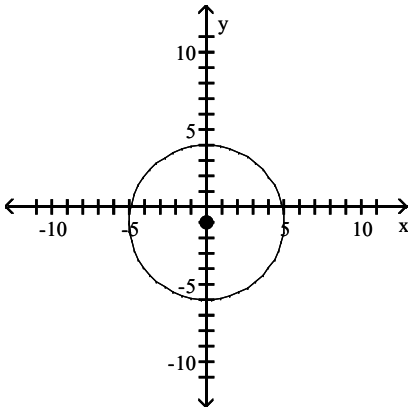
237) $(x - 1)^2 + y^2 = 25$



A)

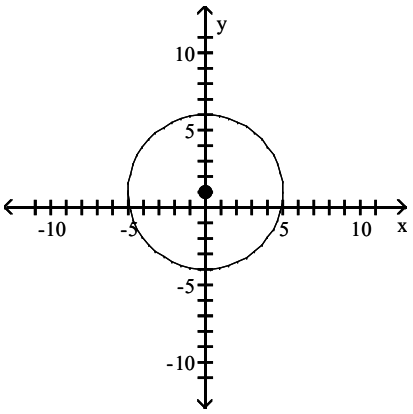


B)

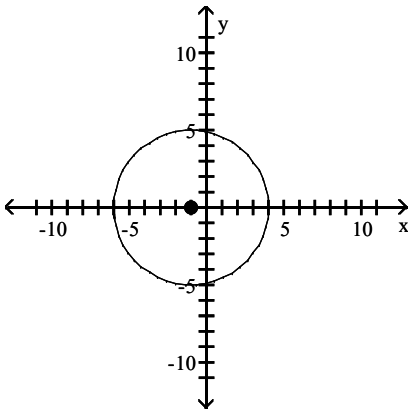


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C)



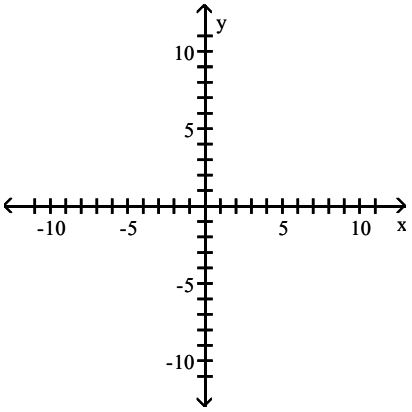
D)



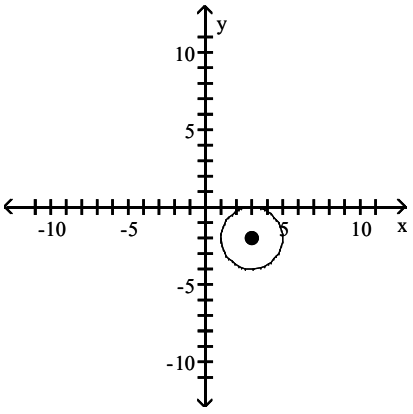
Answer: A

Find the center (h, k) and radius r of the circle. Graph the circle.

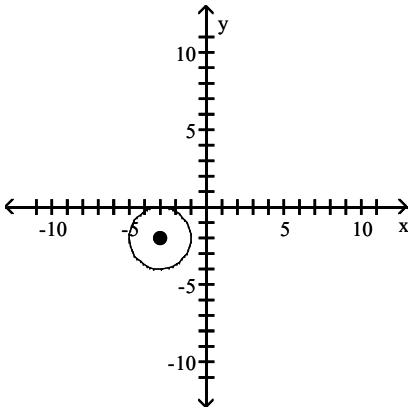
238) $x^2 + y^2 - 6x - 4y + 9 = 0$



A) (h, k) = (3, –2); r = 2

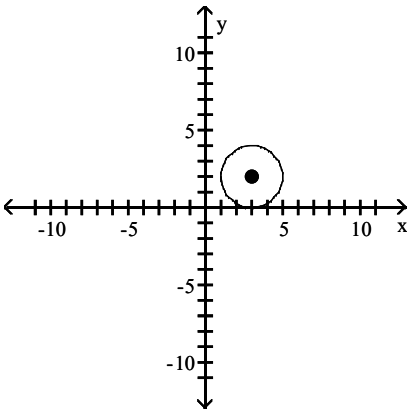


B) (h, k) = (–3, –2); r = 2

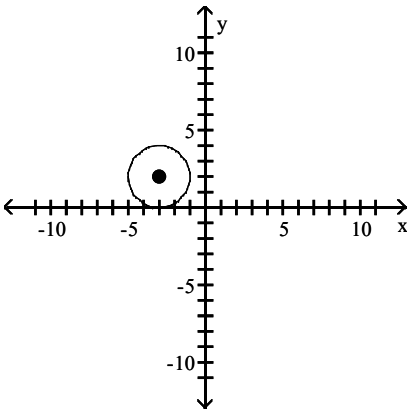


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C) (h, k) = (3, 2); r = 2

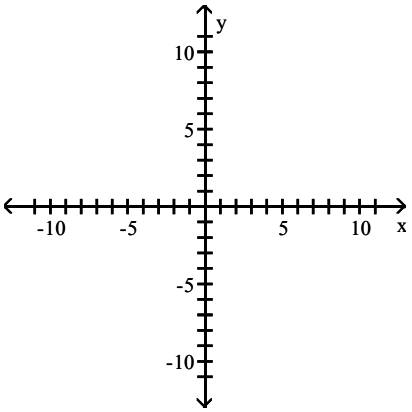


D) (h, k) = (–3, 2); r = 2

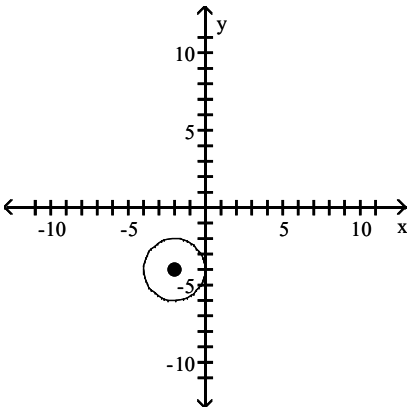


Answer: C

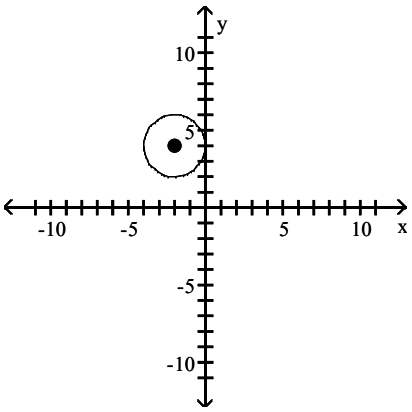
239) $x^2 + y^2 + 4x + 8y + 16 = 0$



A) (h, k) = (–2, –4); r = 2

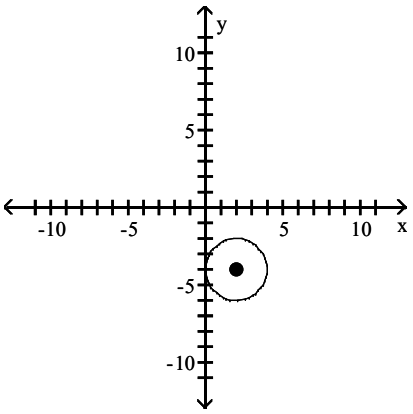


B) (h, k) = (–2, 4); r = 2

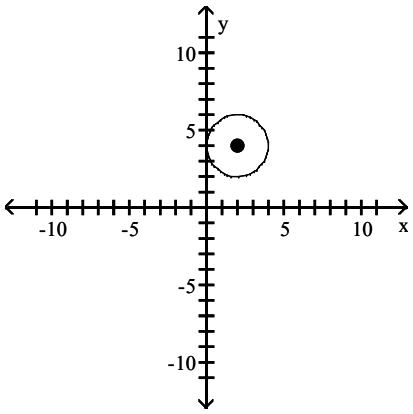


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C) (h, k) = (2, –4); r = 2



D) (h, k) = (2, 4); r = 2



Answer: A

Find the center (h, k) and radius r of the circle with the given equation.

240) $x^2 + 10x + 25 + (y + 6)^2 = 16$

A) (h, k) = (–6, –5); r = 4
B) (h, k) = (5, 6); r = 16
C) (h, k) = (–5, –6); r = 4
D) (h, k) = (6, 5); r = 16

Answer: C

241) $x^2 + 4x + 4 + y^2 - 10y + 25 = 9$

A) (h, k) = (–2, 5); r = 3
B) (h, k) = (2, –5); r = 9
C) (h, k) = (–5, 2); r = 9
D) (h, k) = (5, –2); r = 3

Answer: A

242) $x^2 + y^2 - 18x + 12y + 117 = 4$

A) (h, k) = (6, –9); r = 4
B) (h, k) = (9, –6); r = 2
C) (h, k) = (–6, 9); r = 2
D) (h, k) = (–9, 6); r = 4

Answer: B

243) $x^2 + y^2 - 4x + 8y = 29$

A) (h, k) = (2, –4); r = 7
B) (h, k) = (–2, 4); r = 49
C) (h, k) = (–4, 2); r = 7
D) (h, k) = (4, –2); r = 49

Answer: A

244) $4x^2 + 4y^2 - 12x + 16y - 5 = 0$

A) (h, k) = $(\frac{3}{2}, -2)$; r = $\frac{\sqrt{30}}{2}$
B) (h, k) = $(-\frac{3}{2}, 2)$; r = $\frac{3\sqrt{5}}{2}$
C) (h, k) = $(\frac{3}{2}, -2)$; r = $\frac{3\sqrt{5}}{2}$
D) (h, k) = $(-\frac{3}{2}, 2)$; r = $\frac{\sqrt{30}}{2}$

Answer: A

Find the general form of the equation of the the circle.

245) Center at the point (–4, –3); containing the point (–3, 3)

A) $x^2 + y^2 + 6x + 8y - 17 = 0$
B) $x^2 + y^2 + 6x - 6y - 17 = 0$
C) $x^2 + y^2 - 6x + 6y - 12 = 0$
D) $x^2 + y^2 + 8x + 6y - 12 = 0$

Answer: D

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246) Center at the point (2, –3); containing the point (5, –3)

A) $x^2 + y^2 + 4x - 6y + 4 = 0$ B) $x^2 + y^2 + 4x - 6y + 22 = 0$

C) $x^2 + y^2 - 4x + 6y + 22 = 0$ D) $x^2 + y^2 - 4x + 6y + 4 = 0$

Answer: D

247) Center at the point (2, 4); tangent to y–axis

A) $x^2 + y^2 - 4x - 8y + 4 = 0$ B) $x^2 + y^2 - 4x - 8y + 24 = 0$

C) $x^2 + y^2 + 4x + 8y + 16 = 0$ D) $x^2 + y^2 - 4x - 8y + 16 = 0$

Answer: D

Solve the problem.

248) If a circle of radius 5 is made to roll along the x–axis, what is the equation for the path of the center of the circle?

A) $y = 0$ B) $y = 5$ C) $y = 10$ D) $x = 5$

Answer: B

249) Earth is represented on a map of the solar system so that its surface is a circle with the equation $x^2 + y^2 + 8x + 4y - 4205 = 0$. A weather satellite circles 0.5 units above the Earth with the center of its circular orbit at the center of the Earth. Find the general form of the equation for the orbit of the satellite on this map.

A) $x^2 + y^2 + 8x + 4y - 4270.25 = 0$ B) $x^2 + y^2 + 8x + 4y + 19.75 = 0$

C) $x^2 + y^2 - 8x - 4y - 4270.25 = 0$ D) $x^2 + y^2 + 8x + 4y - 44.75 = 0$

Answer: A

250) Find an equation of the line containing the centers of the two circles

$x^2 + y^2 - 2x - 10y + 25 = 0$ and

$x^2 + y^2 + 12x - 2y + 33 = 0$

A) $4x + 7y + 31 = 0$ B) $6x + 5y + 31 = 0$ C) $-4x - 7y + 31 = 0$ D) $4x - 7y + 31 = 0$

Answer: D

251) A wildlife researcher is monitoring a black bear that has a radio telemetry collar with a transmitting range of 30 miles. The researcher is in a research station with her receiver and tracking the bear's movements. If we put the origin of a coordinate system at the research station, what is the equation of all possible locations of the bear where the transmitter would be at its maximum range?

A) $x^2 + y^2 = 30$ B) $x^2 - y^2 = 30$ C) $x^2 + y^2 = 900$ D) $x^2 + y^2 = 60$

Answer: C

252) If a satellite is placed in a circular orbit of 420 kilometers above the Earth, what is the equation of the path of the satellite if the origin is placed at the center of the Earth (the diameter of the Earth is approximately 12,740 kilometers)?

A) $x^2 + y^2 = 46{,}104{,}100$ B) $x^2 + y^2 = 40{,}576{,}900$

C) $x^2 + y^2 = 176{,}400$ D) $x^2 + y^2 = 173{,}185{,}600$

Answer: A

253) A power outage affected all homes and businesses within a 19 mi radius of the power station. If the power station is located 10 mi north of the center of town, find an equation of the circle consisting of the furthest points from the station affected by the power outage.

A) $x^2 + (y - 10)^2 = 19$ B) $x^2 + (y - 10)^2 = 361$ C) $x^2 + y^2 = 361$ D) $x^2 + (y + 10)^2 = 361$

Answer: B

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254) A power outage affected all homes and businesses within a 3 mi radius of the power station. If the power station is located 3 mi west and 4 mi north of the center of town, find an equation of the circle consisting of the furthest points from the station affected by the power outage.

A) $(x + 3)^2 + (y - 4)^2 = 9$

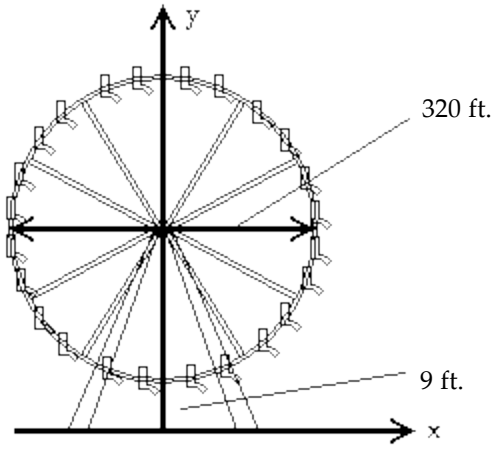
B) $(x - 3)^2 + (y + 4)^2 = 9$

C) $(x - 3)^2 + (y - 4)^2 = 9$

D) $(x + 3)^2 + (y + 4)^2 = 9$

Answer: A

255) A Ferris wheel has a diameter of 320 feet and the bottom of the Ferris wheel is 9 feet above the ground. Find the equation of the wheel if the origin is placed on the ground directly below the center of the wheel, as illustrated.



A) $x^2 + (y - 160)^2 = 102{,}400$

B) $x^2 + y^2 = 25{,}600$

C) $x^2 + (y - 169)^2 = 25{,}600$

D) $x^2 + (y - 160)^2 = 25{,}600$

Answer: C

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

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51) D
52) C
53) B
54) A
55) C
56) D
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61) A
62) A
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92) C
93) B
94) A
95) D
96) C
97) E
98) A
99) B
100) A

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101) D
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150) A

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151) D
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193) B
194) B
195) D
196) C
197) C
198) D
199) B
200) A

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201) C
202) D
203) C
204) D
205) D
206) A
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209) C
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238) C
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240) C
241) A
242) B
243) A
244) A
245) D
246) D
247) D
248) B
249) A
250) D

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251) C
252) A
253) B
254) A
255) C

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