

www.alvarezmathhelp.com**MULTIPLE CHOICE.** Choose the one alternative that best completes the statement or answers the question.**Factor the binomial completely.**

- 1) $81x^2 - 49$ 1) _____
 A) $(9x - 7)^2$ B) prime C) $(9x + 7)^2$ D) $(9x + 7)(9x - 7)$

Answer: D

Objective: (13.5) Factor the difference of two squares.

Solve the equation.

- 2) $(2x + 1)(5x - 3) = 0$ 2) _____
 A) $\frac{1}{2}, -\frac{3}{5}$ B) $-\frac{1}{2}, \frac{3}{5}$ C) 1, 2 D) $2, \frac{5}{3}$

Answer: B

Objective: (13.6) Solve quadratic equations by factoring.

- 3) $x^2 + 2x - 80 = 0$ 3) _____
 A) -10, 8 B) 10, 8 C) -10, 1 D) 10, -8

Answer: A

Objective: (13.6) Solve quadratic equations by factoring.

- 4) $x^2 - 7x - 18 = 0$ 4) _____
 A) 9, -2 B) -9, 2 C) -9, -2 D) -18, 0

Answer: A

Objective: (13.6) Solve quadratic equations by factoring.

- 5) $x^2 - x = 72$ 5) _____
 A) -8, 9 B) 8, 9 C) 1, 72 D) -8, -9

Answer: A

Objective: (13.6) Solve quadratic equations by factoring.

- 6) $x^2 + 3x = 28$ 6) _____
 A) -7, 4 B) 7, 4 C) -7, 1 D) 7, -4

Answer: A

Objective: (13.6) Solve quadratic equations by factoring.

- 7) $2x^2 - 7x - 9 = 0$ 7) _____
 A) $\frac{9}{2}, -1$ B) $\frac{2}{9}, -1$ C) $\frac{2}{9}, 1$ D) $\frac{2}{9}, 0$

Answer: A

Objective: (13.6) Solve quadratic equations by factoring.

8) $15x^2 - 8x = 0$ 8) _____
A) $\frac{8}{15}, 0$ B) $\frac{15}{8}, 0$ C) $-\frac{8}{15}, 0$ D) $-\frac{15}{8}, 0$

Answer: A

Objective: (13.6) Solve quadratic equations by factoring.

9) $9x^2 - 16 = 0$ 9) _____
A) $\frac{4}{3}, -\frac{4}{3}$ B) $\frac{4}{3}$ C) $-\frac{4}{3}$ D) $\frac{4}{3}, -\frac{4}{3}, 0$

Answer: A

Objective: (13.6) Solve quadratic equations by factoring.

10) $3x^2 + 21x + 36 = 0$ 10) _____
A) $-4, -3$ B) $-\frac{1}{2}, \frac{1}{2}$ C) $3, 4$ D) $7, 8$

Answer: A

Objective: (13.6) Solve quadratic equations by factoring.

11) $15x^2 + 31x + 1 = -9$ 11) _____
A) $-\frac{5}{3}, -\frac{2}{5}$ B) $\frac{5}{3}, \frac{2}{5}$ C) $-\frac{3}{5}, -\frac{2}{5}$ D) $\frac{3}{5}, \frac{5}{2}$

Answer: A

Objective: (13.6) Solve quadratic equations by factoring.

12) $10x^3 + 70x^2 + 120x = 0$ 12) _____
A) $0, -3, -4$ B) $-3, -4$ C) $0, 3, 4$ D) $-\frac{1}{3}, -4$

Answer: A

Objective: (13.6) Solve equations with degree greater than 2 by factoring.

13) $y^3 + 6y^2 + 9y = 0$ 13) _____
A) $0, -3$ B) $0, 3$ C) $3, -3$ D) $0, -3, 3$

Answer: A

Objective: (13.6) Solve equations with degree greater than 2 by factoring.

14) $(3x + 2)(9x^2 + 12x + 4) = 0$ 14) _____
A) $-\frac{2}{3}$ B) $-\frac{2}{3}, 0$ C) $-\frac{2}{3}, 3, -2$ D) $-\frac{2}{3}, 3, -2, 0$

Answer: A

Objective: (13.6) Solve equations with degree greater than 2 by factoring.

15) $9x^3 - 16x = 0$ 15) _____
A) $\frac{4}{3}, -\frac{4}{3}, 0$ B) $\frac{4}{3}$ C) $-\frac{4}{3}$ D) $\frac{4}{3}, -\frac{4}{3}$

Answer: A

Objective: (13.6) Solve equations with degree greater than 2 by factoring.

16) $25x^3 - 30x^2 + 8x = 0$

A) $\frac{4}{5}, \frac{2}{5}, 0$

B) $\frac{4}{25}, \frac{2}{25}$

C) $-\frac{4}{5}, -\frac{2}{5}, 0$

D) $\frac{2}{25}, \frac{6}{25}$

16) _____

Answer: A

Objective: (13.6) Solve equations with degree greater than 2 by factoring.

Find the product and simplify.

17) $\frac{2y}{4y+2} \cdot \frac{10y+5}{7}$

A) $\frac{5y}{7}$

B) $\frac{5}{7}$

C) $\frac{5y}{14}$

D) $\frac{y}{7}$

17) _____

Answer: A

Objective: (14.2) Multiply rational expressions.

Find the quotient and simplify.

18) $\frac{x^2 - y^2}{x + y} \div \frac{x}{x^2 - xy}$

A) $(x - y)^2$

B) $(x + y)$

C) $(x + y)^2$

D) $(x - y)(x + y)$

18) _____

Answer: A

Objective: (14.2) Divide rational expressions.

Perform the indicated operation. Simplify if possible.

19) $\frac{x^2 - 8x}{x - 6} + \frac{12}{x - 6}$

A) $x - 2$

B) $x + 6$

C) $x + 2$

D) $x - 6$

19) _____

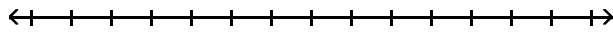
Answer: A

Objective: (14.3) Add and subtract rational expressions with the same denominator.

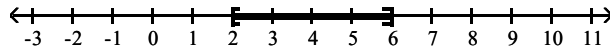
Solve the compound inequality. Graph the solution set.

20) $13 \leq 4t + 5 \leq 29$

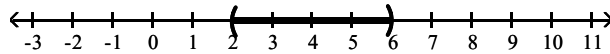
20) _____



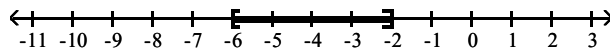
A) $[2, 6]$



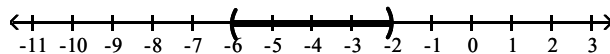
B) $(2, 6)$



C) $[-6, -2]$



D) $(-6, -2)$



Answer: A

Objective: (16.1) Solve compound inequalities containing "and."

Solve the absolute value equation.

21) $|x + 3| = 6$

A) -9, 3

B) 9, 3

C) -3

D) \emptyset

21) _____

Answer: A

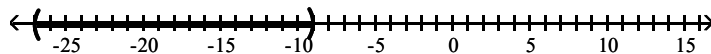
Objective: (16.2) Solve absolute value equations.

Solve the inequality. Graph the solution set.

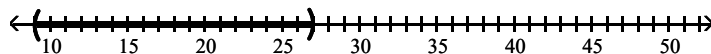
22) $|x + 18| < 9$

A) $(-27, -9)$

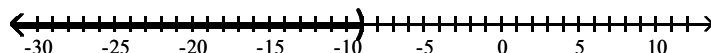
22) _____



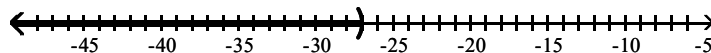
B) $(9, 27)$



C) $(-\infty, -9)$



D) $(-\infty, -27)$

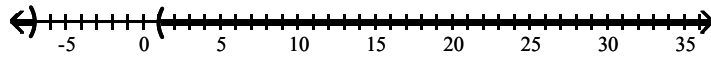


Answer: A

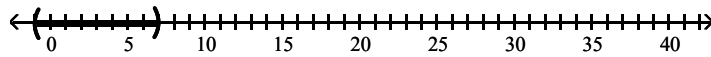
Objective: (16.3) Solve absolute value inequalities of the form $|X| < a$.

23) $|x + 3| > 4$
 A) $(-\infty, -7) \cup (1, \infty)$

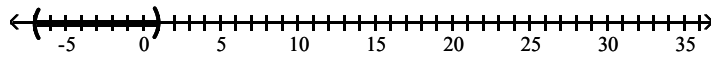
23) _____



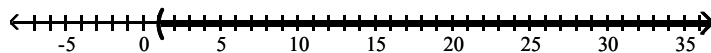
B) $(-1, 7)$



C) $(-7, 1)$



D) $(1, \infty)$



Answer: A

Objective: (16.3) Solve absolute value inequalities of the form $|X| > a$.

Find the square root. Assume that all variables represent positive real numbers.

24) $\sqrt{16x^{10}}$

24) _____

A) $4x^5$

B) $4x^{10}$

C) $16x^5$

D) $4x^2$

Answer: A

Objective: (17.1) Find square roots.

Evaluate.

25) If $f(x) = \sqrt{2x + 7}$, find the value of $f(37)$.

25) _____

A) 9

B) 81

C) 74

D) $\sqrt{74}$

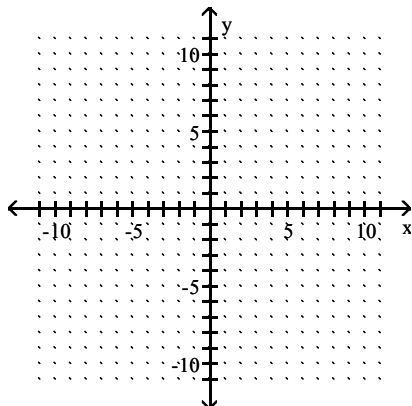
Answer: A

Objective: (17.1) Find function values of square and cube roots.

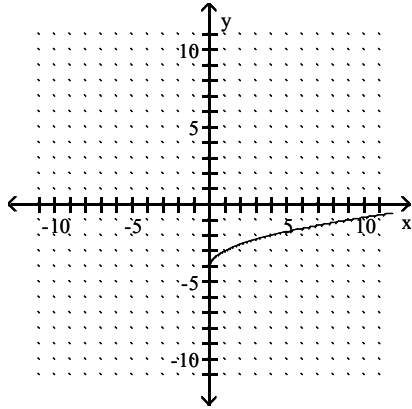
Identify the domain and then graph the function.

26) $f(x) = \sqrt{x} - 4$

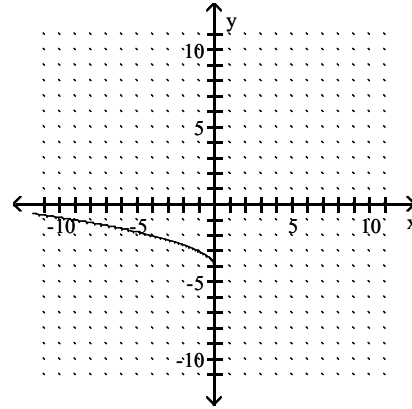
26) _____



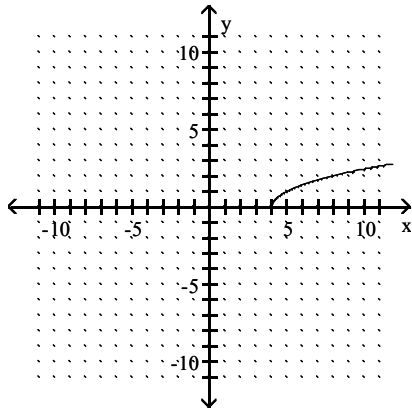
A) $[0, \infty)$



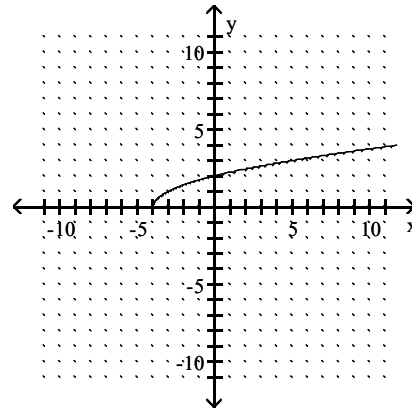
B) $(-\infty, 0]$



C) $[4, \infty)$



D) $[-4, \infty)$



Answer: A

Objective: (17.1) Graph square and cube root functions.

Use radical notation to write the expression. Simplify if possible.

27) $256^{1/4}$

A) 4

B) 16

C) 64

D) 1024

27) _____

Answer: A

Objective: (17.2) Understand the meaning of $a^{(1/n)}$.

Simplify the radical expression. Assume that all variables represent positive real numbers.

28) $\sqrt{20}$

A) $2\sqrt{5}$

B) $5\sqrt{2}$

C) 10

D) 4

28) _____

Answer: A

Objective: (17.3) Simplify radicals.

29) $\sqrt{320k^7q^8}$

A) $8k^3q^4\sqrt{5k}$

B) $8k^7q^8\sqrt{5k}$

C) $8k^3q^4\sqrt{5}$

D) $8q^4\sqrt{5k^7}$

29) _____

Answer: A

Objective: (17.3) Simplify radicals.

30) $\sqrt[3]{512x^4y^5}$ 30) _____
 A) $8xy\sqrt[3]{xy^2}$ B) $5xy\sqrt[3]{xy^2}$ C) $8xy\sqrt[3]{xy}$ D) $8xy\sqrt{xy^2}$

Answer: A

Objective: (17.3) Simplify radicals.

Find the distance between the pair of points.

31) $(-4, 2)$ and $(-12, -4)$ 31) _____
 A) 10 units B) 100 units C) 11 units D) 20 units

Answer: A

Objective: (17.3) Use the distance and midpoint formula.

Find the midpoint of the line segment whose endpoints are given.

32) $(4, -8)$, $(0, 4)$ 32) _____
 A) $(2, -2)$ B) $(2, -6)$ C) $(4, -12)$ D) $(4, -4)$

Answer: A

Objective: (17.3) Use the distance and midpoint formula.

Solve.

33) $\sqrt{x+4} = 8$ 33) _____
 A) 60 B) 64 C) 68 D) 144

Answer: A

Objective: (17.6) Solve equations that contain radical expressions.

34) $\sqrt{20x+20} = x+6$ 34) _____
 A) 4 B) -3 C) -4 D) 5

Answer: A

Objective: (17.6) Solve equations that contain radical expressions.

Perform the indicated operation. Write the result in the form $a + bi$.

35) $(6 + 6i) - (-9 + i)$ 35) _____
 A) $15 + 5i$ B) $15 - 5i$ C) $-3 + 7i$ D) $-15 - 5i$

Answer: A

Objective: (17.7) Add or subtract complex numbers.

36) $(5 + 3i)(5 - 3i)$ 36) _____
 A) $34 + 0i$ B) $25 - 9i^2$ C) $16 + 0i$ D) $25 - 9i$

Answer: A

Objective: (17.7) Multiply complex numbers.

37) $\frac{8+7i}{9-2i}$ 37) _____
 A) $\frac{58}{85} + \frac{79}{85}i$ B) $\frac{58}{77} - \frac{79}{77}i$ C) $\frac{86}{85} - \frac{47}{85}i$ D) $\frac{86}{77} - \frac{79}{77}i$

Answer: A

Objective: (17.7) Divide complex numbers.

Use the square root property to solve the equation.

38) $(x - 5)^2 = 36$ 38) _____
A) 11, -1 B) -1, -11 C) 6, -6 D) 41

Answer: A

Objective: (18.1) Use the square root property to solve quadratic equations.

Use the quadratic formula to solve the equation.

39) $x^2 + 24x + 144 = 0$ 39) _____
A) -12, 12 B) -12 C) $12 - i, 12 + i$ D) 12

Answer: B

Objective: (18.2) Solve quadratic equations by using the quadratic formula.

40) $x^2 + 18x + 70 = 0$ 40) _____
A) $9 + \sqrt{11}$ B) $-18 + \sqrt{70}$
C) $9 - \sqrt{70}, 9 + \sqrt{70}$ D) $-9 - \sqrt{11}, -9 + \sqrt{11}$

Answer: D

Objective: (18.2) Solve quadratic equations by using the quadratic formula.

41) $x^2 - 8x + 20 = 0$ 41) _____
A) $4 - 2i, 4 + 2i$ B) $4 - 4i, 4 + 4i$ C) $4 + 2i$ D) 6, 2

Answer: A

Objective: (18.2) Solve quadratic equations by using the quadratic formula.

42) $2x^2 - 7x - 9 = 0$ 42) _____
A) $\frac{2}{9}, 1$ B) $\frac{9}{2}, -1$ C) $\frac{2}{9}, 0$ D) $\frac{2}{9}, -1$

Answer: B

Objective: (18.2) Solve quadratic equations by using the quadratic formula.

43) $7x^2 = -12x - 3$ 43) _____
A) $\frac{-6 - \sqrt{57}}{7}, \frac{-6 + \sqrt{57}}{7}$ B) $\frac{-6 - \sqrt{15}}{14}, \frac{-6 + \sqrt{15}}{14}$
C) $\frac{-12 - \sqrt{15}}{7}, \frac{-12 + \sqrt{15}}{7}$ D) $\frac{-6 - \sqrt{15}}{7}, \frac{-6 + \sqrt{15}}{7}$

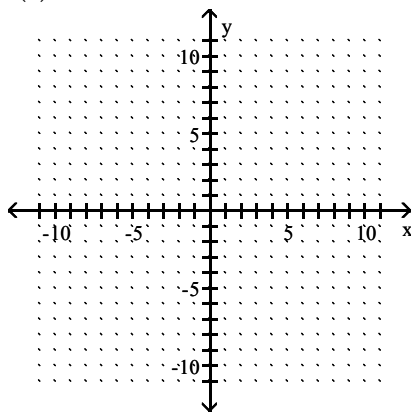
Answer: D

Objective: (18.2) Solve quadratic equations by using the quadratic formula.

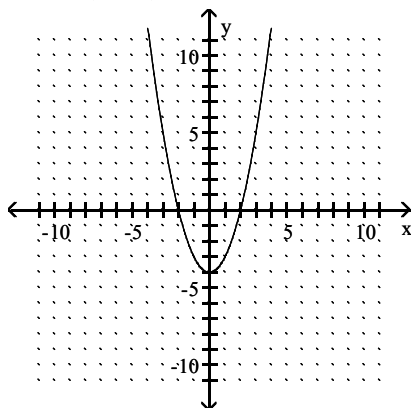
Sketch the graph of the quadratic function. Give the vertex and axis of symmetry.

44) $f(x) = x^2 - 4$

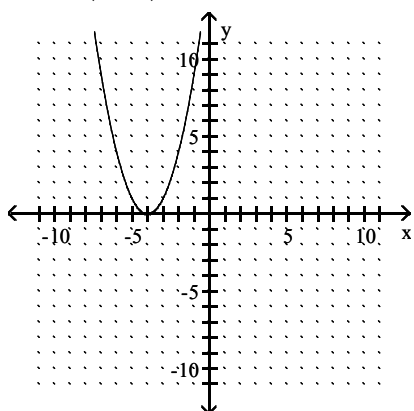
44) _____



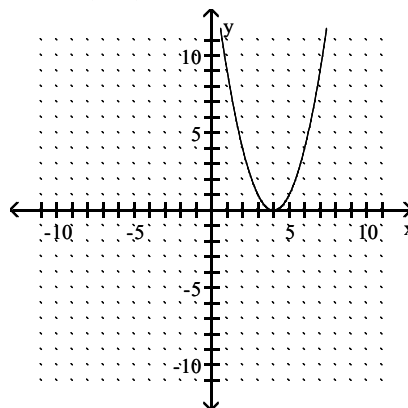
A) vertex (0, -4); axis $x = 0$



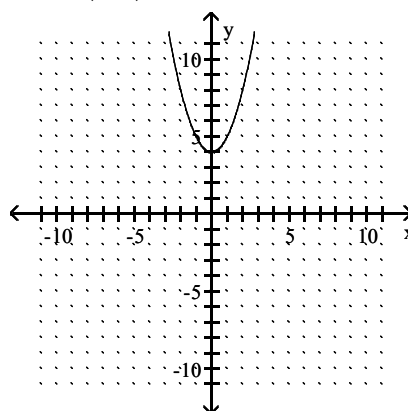
C) vertex (-4, 0); axis $x = -4$



B) vertex (4, 0); axis $x = 4$



D) vertex (0, 4); axis $x = 0$

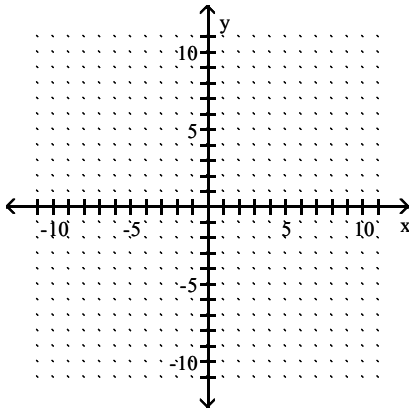


Answer: A

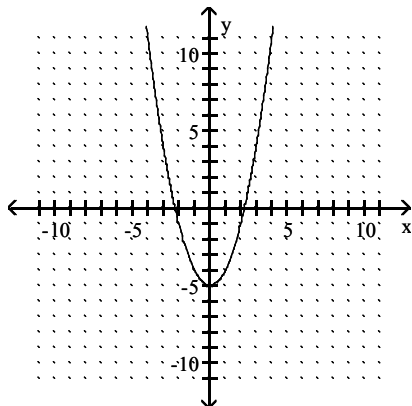
Objective: (18.5) Graph quadratic functions of the form $f(x) = x^2 + k$.

45) $f(x) = (x + 5)^2$

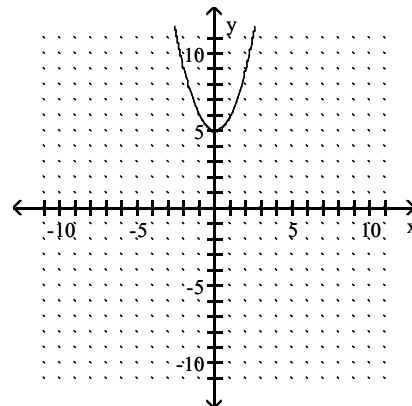
45) _____



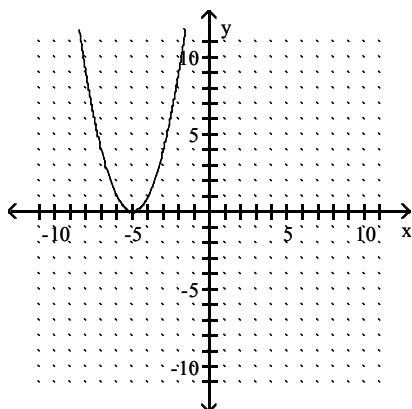
A) vertex $(0, -5)$; axis $x = 0$



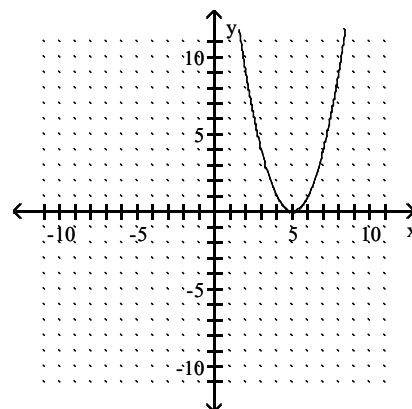
B) vertex $(0, 5)$; axis $x = 0$



C) vertex $(-5, 0)$; axis $x = -5$



D) vertex $(5, 0)$; axis $x = 5$

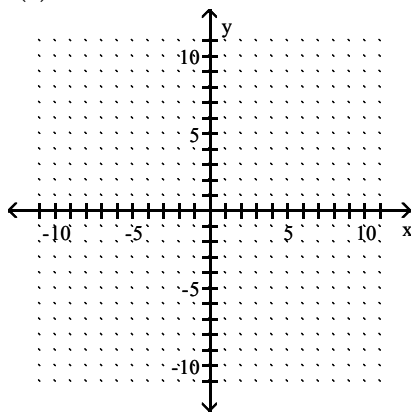


Answer: C

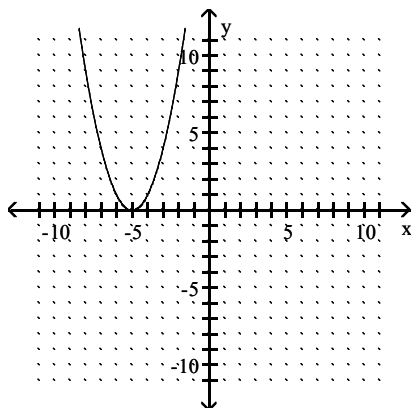
Objective: (18.5) Graph quadratic functions of the form $f(x) = (x - h)^2$.

46) $f(x) = -x^2 - 5$

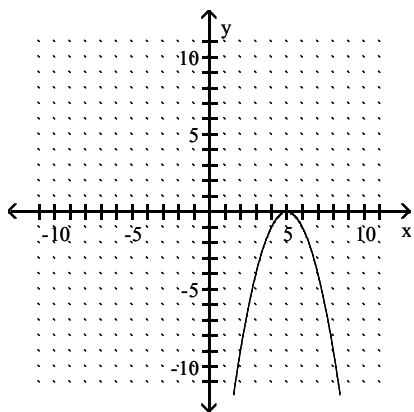
46) _____



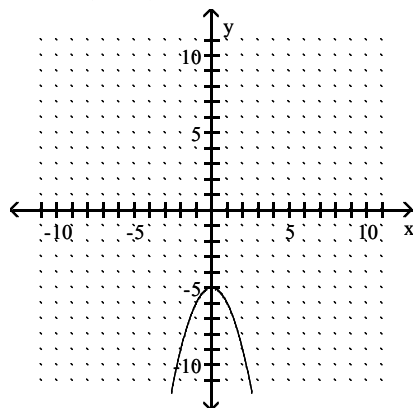
A) vertex $(-5, 0)$; axis $x = -5$



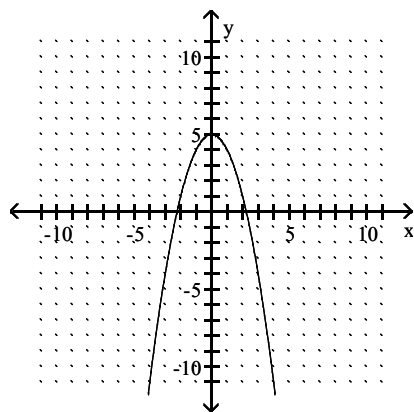
C) vertex $(5, 0)$; axis $x = 5$



B) vertex $(0, -5)$; axis $x = 0$



D) vertex $(0, 5)$; axis $x = 0$



Answer: B

Objective: (18.5) Graph quadratic functions of the form $f(x) = a(x - h)^2 + k$.

Answer Key

Testname: AAFINM041024346

- 1) D
- 2) B
- 3) A
- 4) A
- 5) A
- 6) A
- 7) A
- 8) A
- 9) A
- 10) A
- 11) A
- 12) A
- 13) A
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- 36) A
- 37) A
- 38) A
- 39) B
- 40) D
- 41) A
- 42) B
- 43) D
- 44) A
- 45) C
- 46) B