Exam

Name_____

review math 0320 practice 0404700aafm032024350m

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

A) $\frac{4}{5}, \frac{2}{5}, 0$ B) $\frac{4}{25}, \frac{2}{25}$ C) $-\frac{4}{5}, -\frac{2}{5}, 0$ D) $\frac{2}{25}, \frac{6}{25}$

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

Find the product and simplify.

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

A) $\frac{5y}{7}$ B) $\frac{5}{7}$ C) $\frac{5y}{14}$ D) $\frac{y}{7}$

Answer: A
Objective: (14.2) Multiply rational expressions.

Find the quotient and simplify.

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

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

Answer: A
Objective: (14.2) Divide rational expressions.

Perform the indicated operation. Simplify if possible.

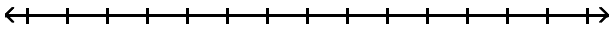
19) $\frac{x^2 - 8x}{x - 6} + \frac{12}{x - 6}$ 19) _____

A) $x - 2$ B) $x + 6$ C) $x + 2$ D) $x - 6$

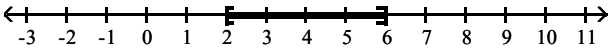
Answer: A
Objective: (14.3) Add and subtract rational expressions with the same denominator.

Solve the compound inequality. Graph the solution set.

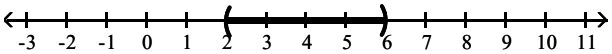
20) $13 \le 4t + 5 \le 29$ 20) _____



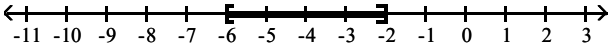
A) [2, 6]



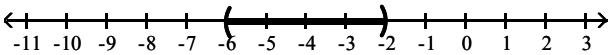
B) (2, 6)



C) [−6, −2]



D) (−6, −2)



Answer: A

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

Solve the absolute value equation.

21) $|x + 3| = 6$ 21) _____

A) −9, 3 B) 9, 3 C) −3 D) ∅

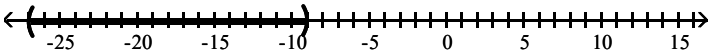
Answer: A

Objective: (16.2) Solve absolute value equations.

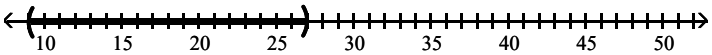
Solve the inequality. Graph the solution set.

22) $|x + 18| < 9$ 22) _____

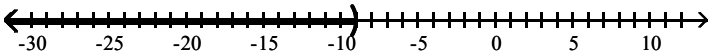
A) (−27, −9)



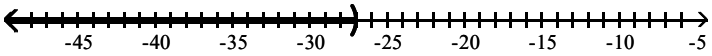
B) (9, 27)



C) (−∞, −9)



D) (−∞, −27)

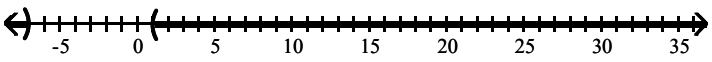


Answer: A

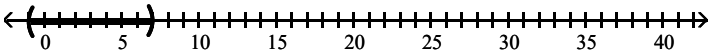
Objective: (16.3) Solve absolute value inequalities of the form $|X| < a$.

23) $|x + 3| > 4$ 23) _____

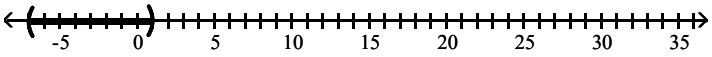
A) $(-\infty, -7) \cup (1, \infty)$



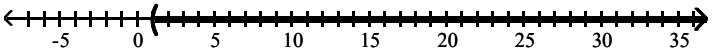
B) $(-1, 7)$



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) _____

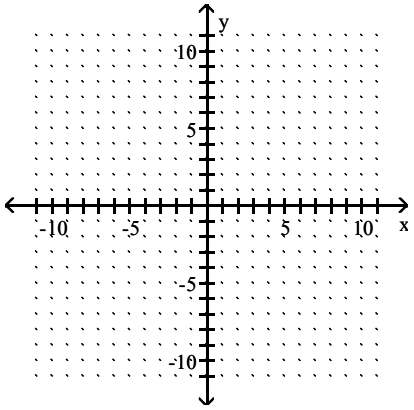
A) 9 B) 81 C) 74 D) $\sqrt{74}$

Answer: A

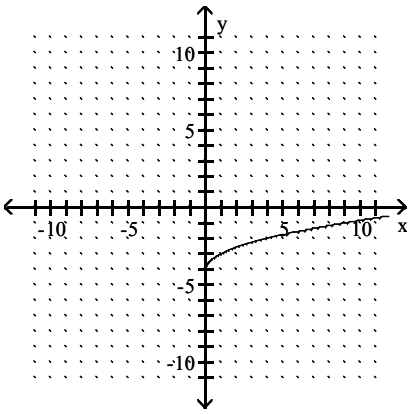
Objective: (17.1) Find function values of square and cube roots.

Identify the domain and then graph the function.

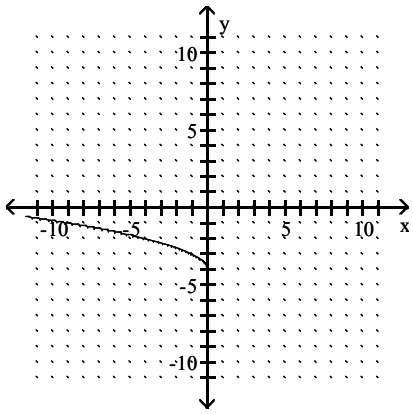
26) $f(x) = \sqrt{x} - 4$ 26) _____



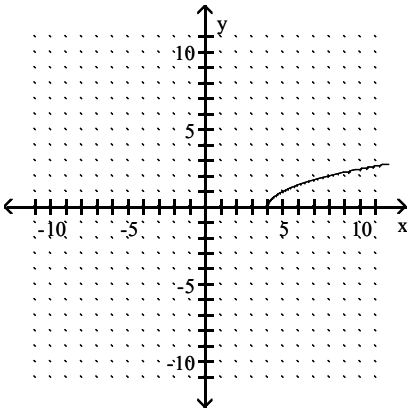
A) [0, ∞)



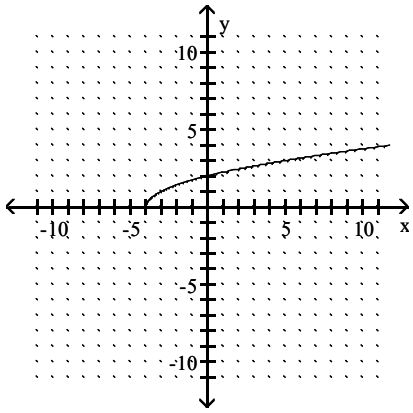
B) (−∞, 0]



C) [4, ∞)



D) [−4, ∞)



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

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

27) $256^{1/4}$ 27) _____

A) 4 B) 16 C) 64 D) 1024

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) $\sqrt{20}$ 28) _____

A) $2\sqrt{5}$ B) $5\sqrt{2}$ C) 10 D) 4

Answer: A
Objective: (17.3) Simplify radicals.

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

A) $8k^3q^4\sqrt{5k}$ B) $8k^7q^8\sqrt{5k}$ C) $8k^3q^4\sqrt{5}$ D) $8q^4\sqrt{5k^7}$

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) $\frac{-6 - \sqrt{15}}{14}, \frac{-6 + \sqrt{15}}{14}$

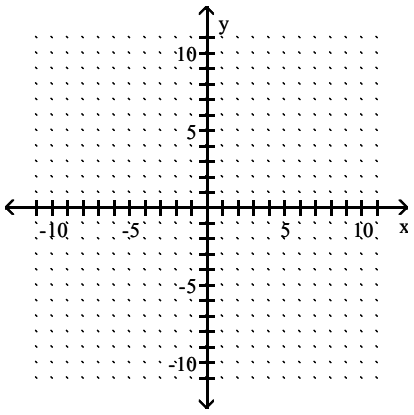
C) $\frac{-12 - \sqrt{15}}{7}, \frac{-12 + \sqrt{15}}{7}$ D) $\frac{-6 - \sqrt{15}}{7}, \frac{-6 + \sqrt{15}}{7}$

Answer: D

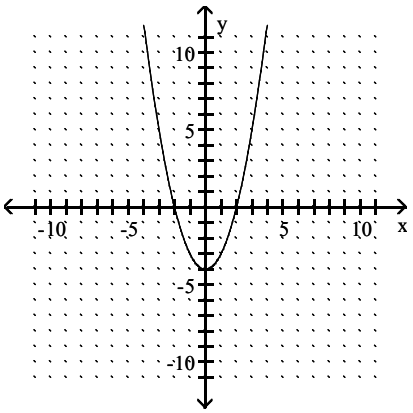
Objective: (18.2) Solve quadratic equations by using the quadratic formula.

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

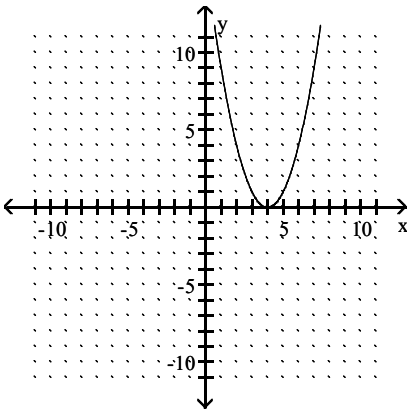
44) $f(x) = x^2 - 4$ 44) _____



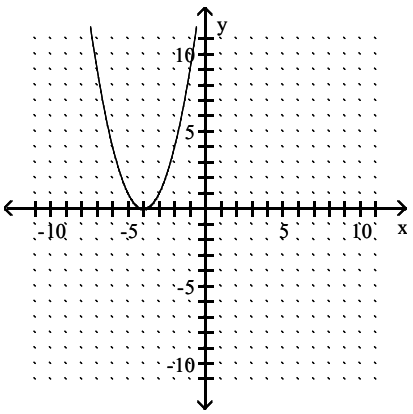
A) vertex (0, –4); axis x = 0



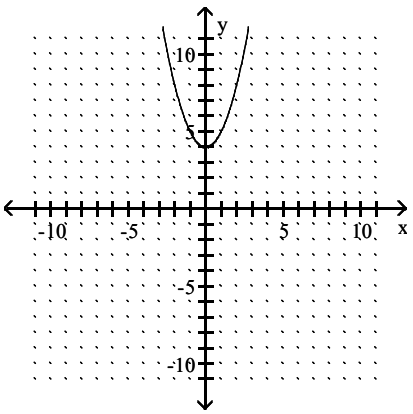
B) vertex (4, 0); axis x = 4



C) vertex (–4, 0); axis x = –4



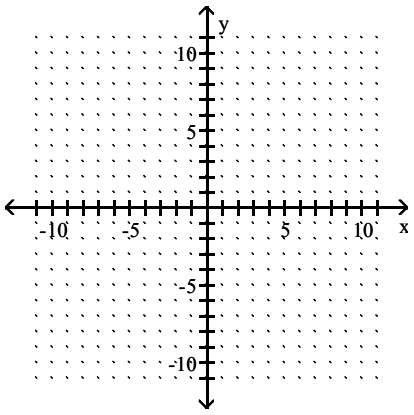
D) vertex (0, 4); axis x = 0



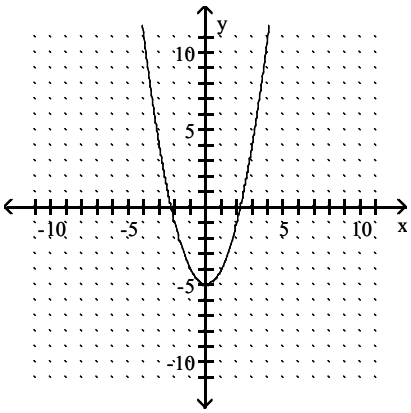
Answer: A

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

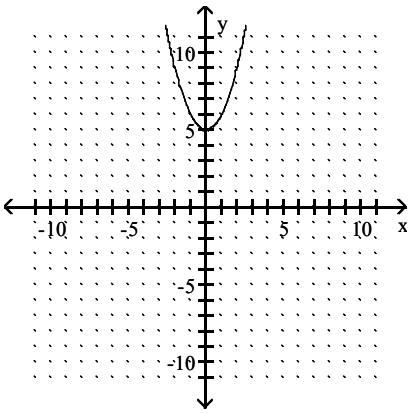
45) $f(x) = (x + 5)^2$ 45) _____



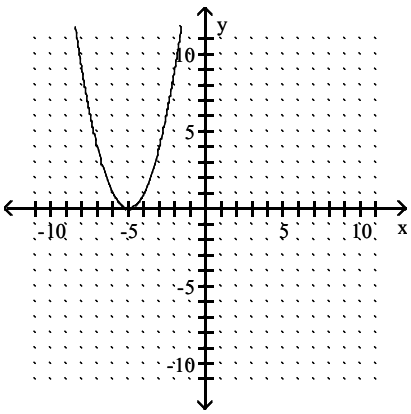
A) vertex (0, –5); axis x = 0



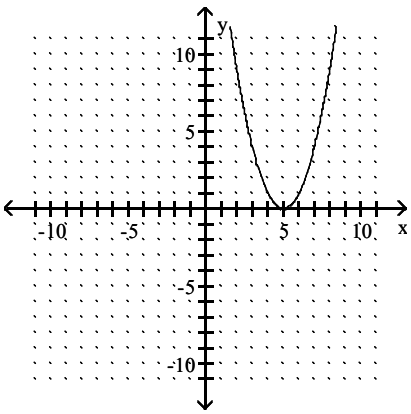
B) vertex (0, 5); axis x = 0



C) vertex (–5, 0); axis x = –5



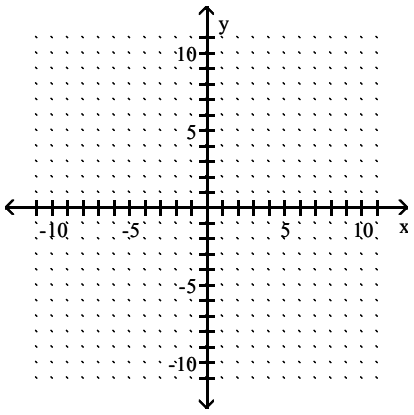
D) vertex (5, 0); axis x = 5



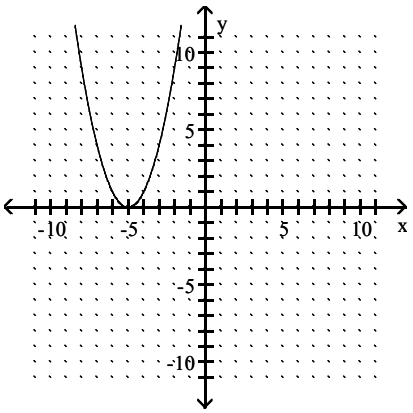
Answer: C

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

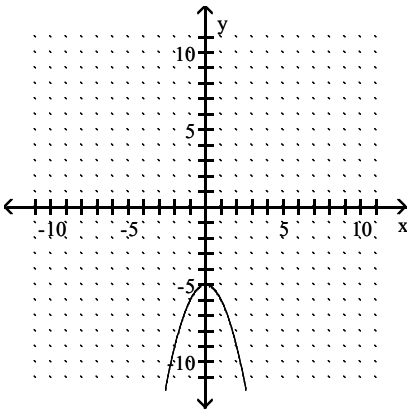
46) $f(x) = -x^2 - 5$ 46) _____



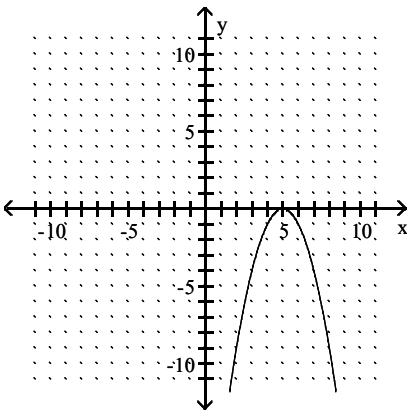
A) vertex (–5, 0); axis x = –5



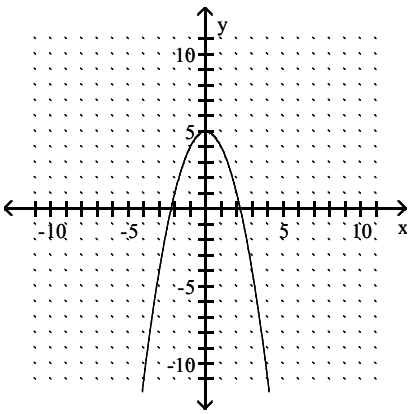
B) vertex (0, –5); axis x = 0



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



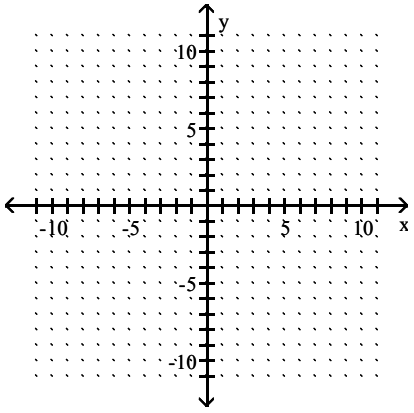
D) vertex (0, 5); axis x = 0



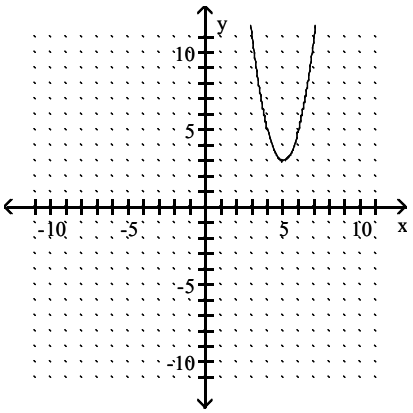
Answer: B

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

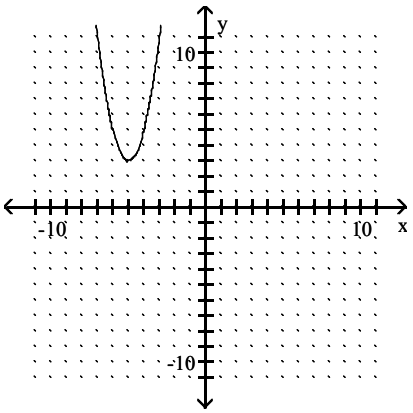
47) $f(x) = 2(x - 5)^2 + 3$ 47) _____



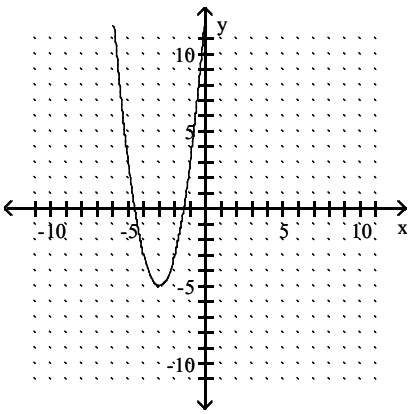
A) vertex (5, 3); axis x = 5



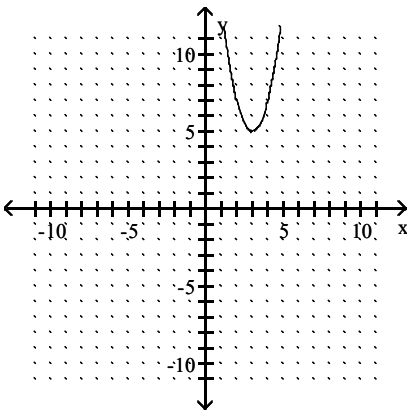
B) vertex (–5, 3); axis x = –5



C) vertex (–3, –5); axis x = –3



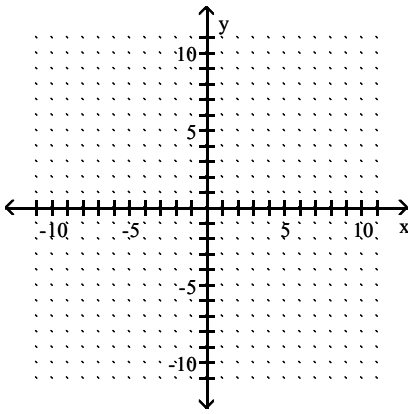
D) vertex (3, 5); axis x = 3



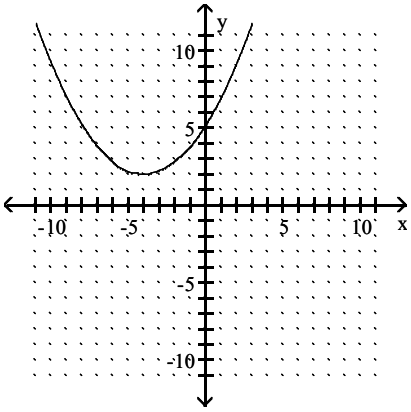
Answer: A

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

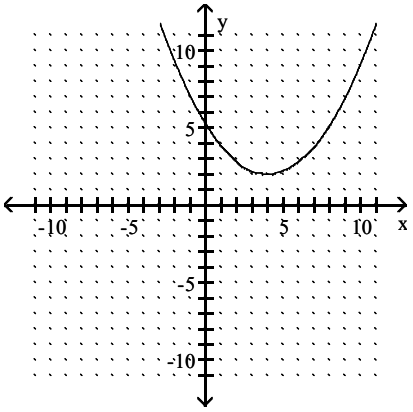
48) $f(x) = \frac{1}{5}(x + 4)^2 + 2$ 48) _____



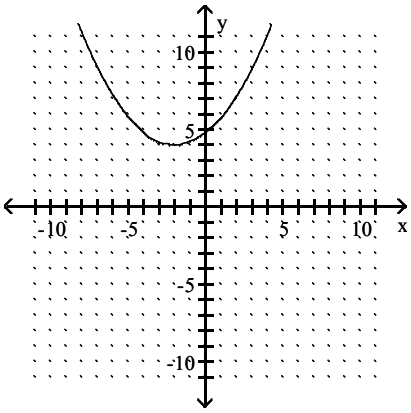
A) vertex (–4, 2); axis x = –4



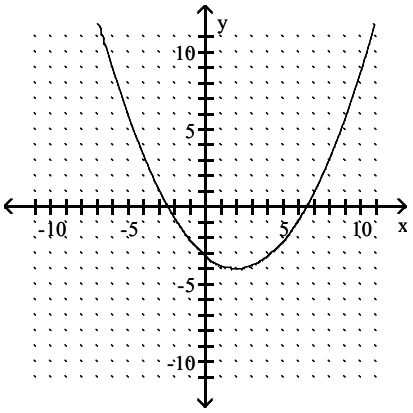
B) vertex (4, 2); axis x = 4



C) vertex (–2, 4); axis x = –2



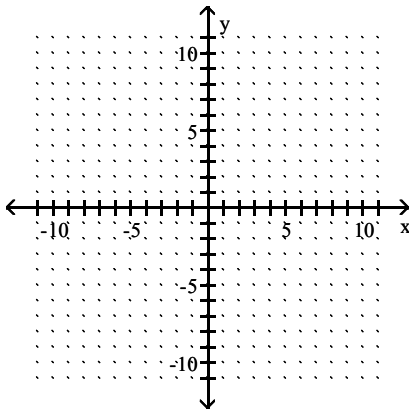
D) vertex (2, –4); axis x = 2



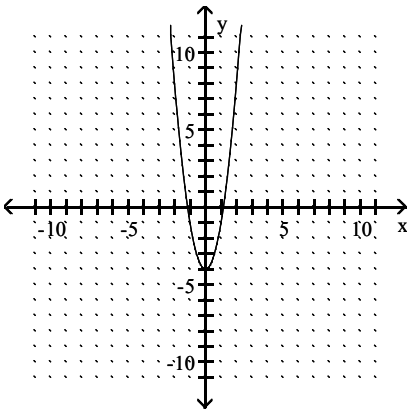
Answer: A

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

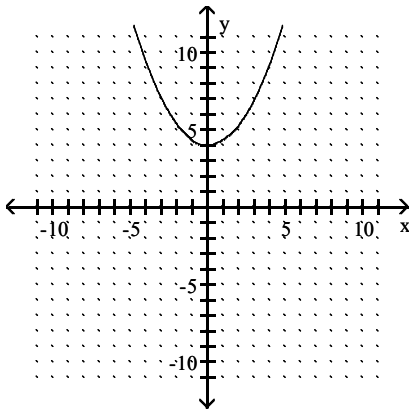
49) $f(x) = 3x^2 - 4$ 49) _____



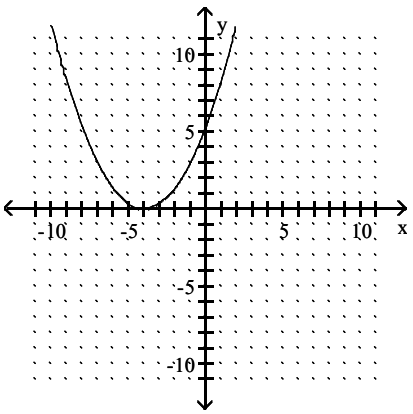
A) vertex (0, –4); axis x = 0



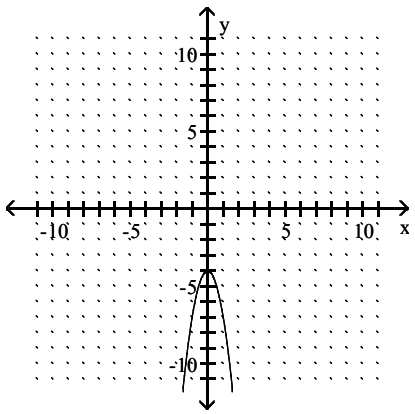
B) vertex (0, –4); axis x = –4



C) vertex (–4, 0); axis x = –4



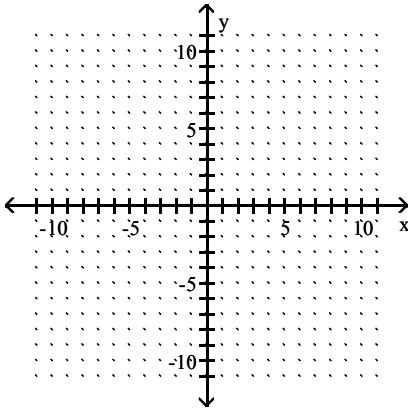
D) vertex (0, –4); axis x = 0



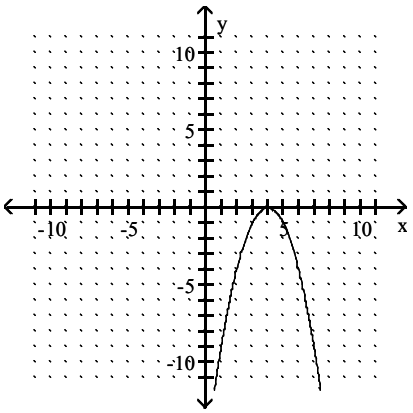
Answer: A

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

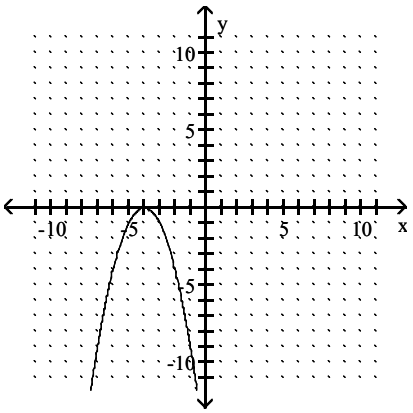
50) $f(x) = -(x - 4)^2$ 50) _____



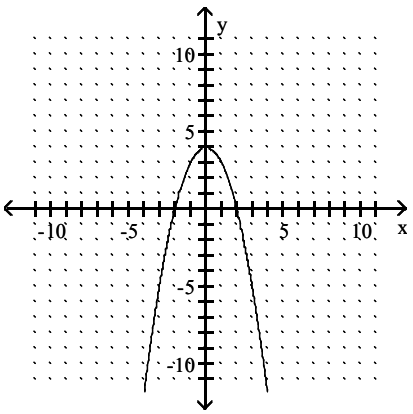
A) vertex (4, 0); axis x = 4



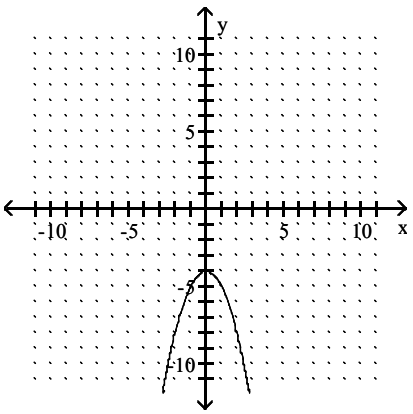
B) vertex (−4, 0); axis x = −4



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



D) vertex (0, −4); axis x = 0



Answer: A

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

Answer Key
Testname: AAFM032024350M

1) D
2) B
3) A
4) A
5) A
6) A
7) A
8) A
9) A
10) 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
47) A
48) A
49) A
50) A