

Lar_AT_8e_Ch01

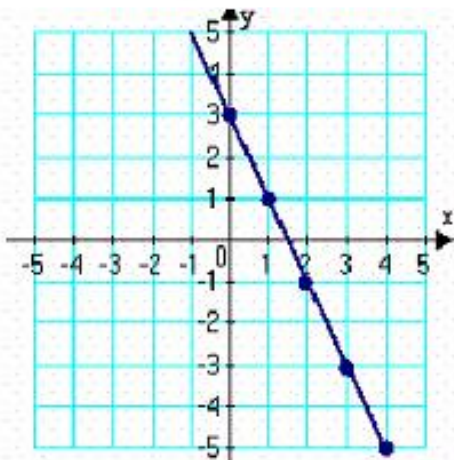
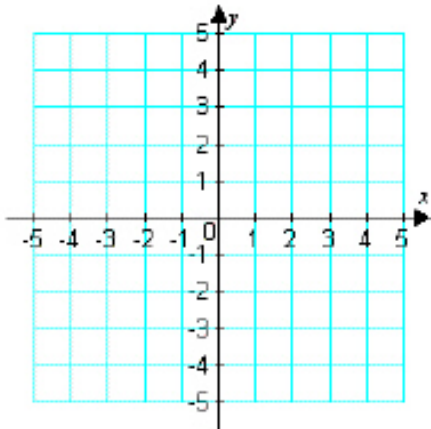
Student: _____

1. Determine which point lies on the graph of the equation $y = 7x^2 - 3x + 2$.
- A. (1, 6)
 - B. (2, 6)
 - C. (1, 4)
 - D. (3, 5)
 - E. (2, 4)

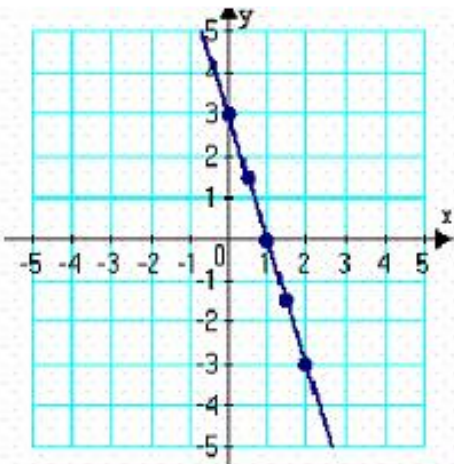
2. Determine which point does **not** lie on the graph of the equation $y = -5 - |x - 3|$.
- A. (-14, -22)
 - B. (-16, -24)
 - C. (-5, -13)
 - D. (-8, -13)
 - E. (-12, -20)

3. Create and complete a table to find the x and y coordinates of points that lie on the graph of the equation below. Plot at least 5 points along with the graph of the equation.

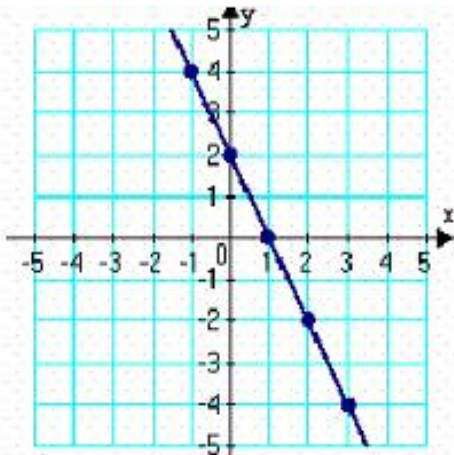
$$y = -3x + 3$$



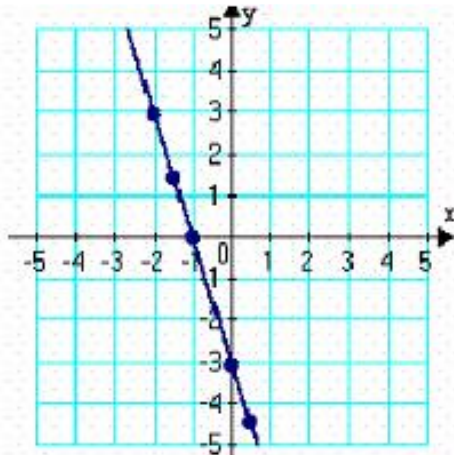
A.



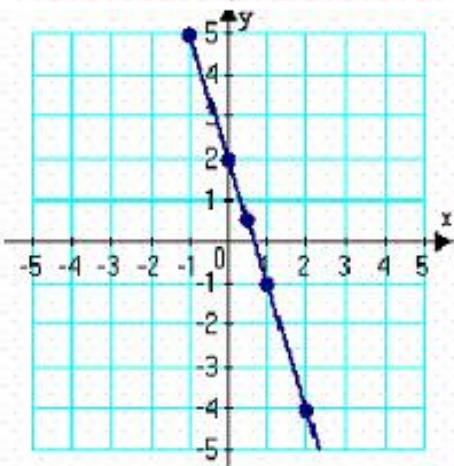
B.



C.



D.



E.

$$y = |-5x - 4|$$

4. Find the x - and y -intercepts of the graph of the equation

$$\left(-\frac{5}{4}, 0\right)$$

A. x -intercept:

y -intercept: $(0, 4)$

$$\left(-\frac{4}{5}, 0\right)$$

B. x -intercept:

y -intercept: $(0, -5)$

$$\left(-\frac{4}{5}, 0\right)$$

C. x -intercept:

y -intercept: $(0, 4)$

D. x -intercept: $(4, 0)$

y -intercept: $(0, -5)$

$$\left(-\frac{5}{4}, 0\right)$$

E. x -intercept:

y -intercept: none

5. Find the x - and y -intercepts of the graph of the equation $y^2 = -6x + 5$.

$$\left(-\frac{5}{6}, 0\right)$$

A. x -intercept:

$$\left(0, \sqrt{5}\right)$$

y -intercept:

$$\left(-\frac{5}{6}, 0\right)$$

B. x -intercept:

$$\left(0, \pm\sqrt{5}\right)$$

y -intercept:

$$\left(\frac{5}{6}, 0\right)$$

C. x -intercept:

$$\left(0, \sqrt{5}\right)$$

y -intercept:

$$\left(-\frac{5}{6}, 0\right)$$

D. x -intercept:

$$\left(0, -\sqrt{5}\right)$$

y -intercept:

$$\left(\frac{5}{6}, 0\right)$$

E. x -intercept:

$$\left(0, \pm\sqrt{5}\right)$$

y -intercept:

6. Use algebraic tests to check the following for symmetry with respect to the axes and the origin.

$$2x - 8y^{20} = 0$$

A. Symmetric with respect to the origin.

B. No symmetry.

C. Symmetric with respect to the y -axis.

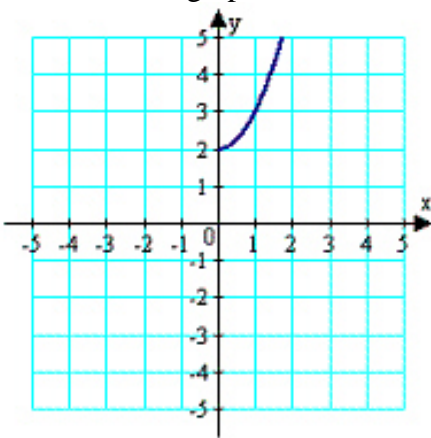
D. Symmetric with respect to the x -axis.

7. Use algebraic tests to check the following for symmetry with respect to the axes and the origin.

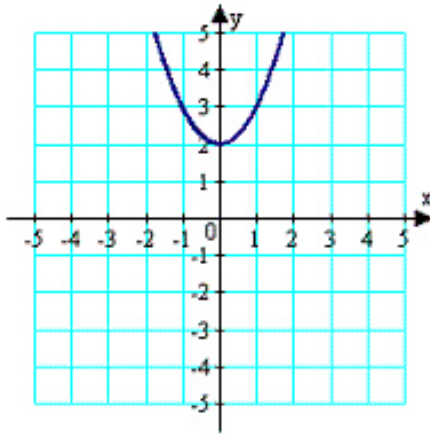
$$y = 8x^4 - x^2 - 8$$

- A. No symmetry.
- B. Symmetric with respect to the y -axis.
- C. Symmetric with respect to the origin.
- D. Symmetric with respect to the x -axis.

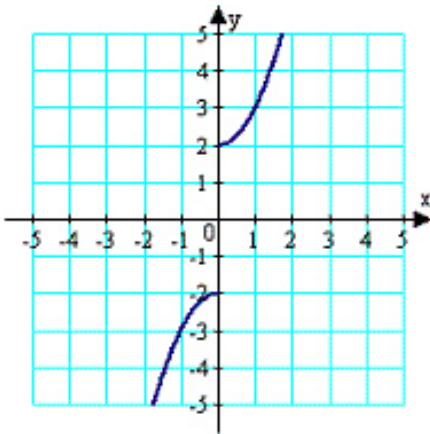
8. Assume the graph has the indicated type of symmetry. Sketch the complete graph.



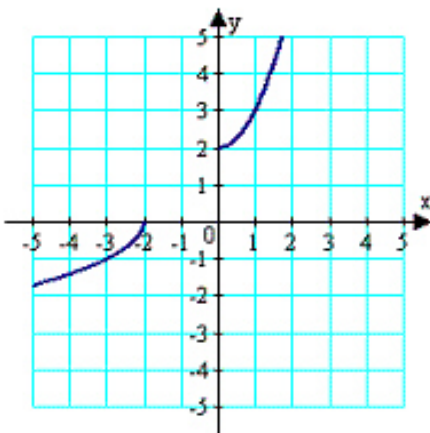
symmetric with respect to the origin



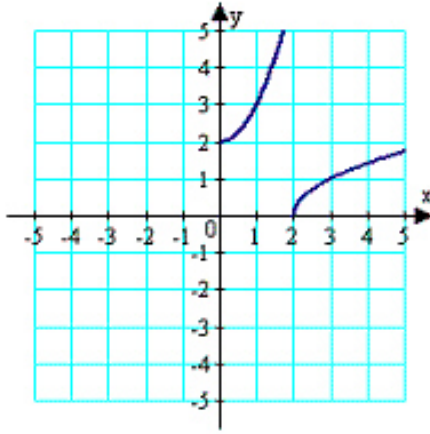
A.



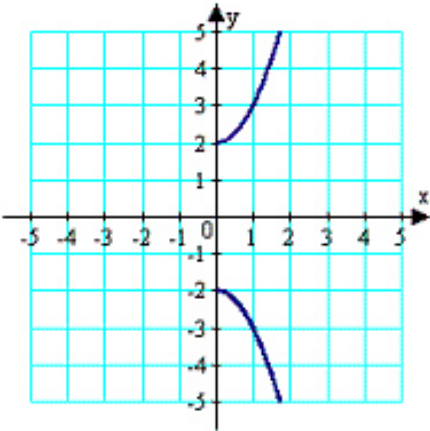
B.



C.



D.



E.

9. Find the x - and y -intercepts of the graph of the equation $y = 49 - 7x$.

A. x -intercept: $(7, 0)$

y -intercept: $(0, -7)$

B. x -intercept: $(49, 0)$

y -intercept: $(0, 7)$

C. x -intercept: $(-7, 0)$

y -intercept: $(0, -49)$

D. x -intercept: $(49, 0)$

y -intercept: $(0, 49)$

E. x -intercept: $(7, 0)$

y -intercept: $(0, 49)$

10. Find the x - and y -intercepts of the graph of the equation $y = \sqrt{9x - 8}$.

$$\left(\frac{9}{8}, 0\right)$$

A. x -intercept:

y -intercept: none

$$\left(\frac{9}{8}, 0\right)$$

B. x -intercept:

y -intercept: $(0, 9)$

$$\left(\frac{8}{9}, 0\right)$$

C. x -intercept:

y -intercept: none

D. x -intercept: $(9, 0)$

y -intercept: $(0, 8)$

E. x -intercept: $(8, 0)$

y -intercept: none

11. Write the standard form of the equation of the circle with the given characteristics.

center: $(3, 1)$; radius: 4

$$(x + 3)^2 + (y + 1)^2 = 16$$

A.

$$(x - 1)^2 + (y - 3)^2 = 4$$

B.

$$(x - 1)^2 + (y - 3)^2 = 16$$

C.

$$(x + 1)^2 + (y + 3)^2 = 4$$

D.

$$(x - 3)^2 + (y - 1)^2 = 16$$

E.

12. Write the standard form of the equation of the circle with the given characteristics.

center: $(-4, 4)$; solution point: $(-2, -6)$

$$(x+4)^2 + (y-4)^2 = 104$$

A.

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

B.

$$(x-4)^2 + (y+4)^2 = 104$$

C.

$$(x-4)^2 + (y+4)^2 = 80$$

D.

$$(x+4)^2 + (y+4)^2 = 80$$

E.

13. Write the standard form of the equation of the circle with the given characteristics.

endpoints of a diameter: $(-1, 4)$, $(7, 6)$

$$(x-3)^2 + (y-5)^2 = 17$$

A.

$$(x-5)^2 + (y-3)^2 = 17$$

B.

$$(x+3)^2 + (y+5)^2 = 17$$

C.

$$(x+3)^2 + (y-5)^2 = 221$$

D.

$$(x-3)^2 + (y+5)^2 = 221$$

E.

14. Find the center and radius of the circle $x^2 + y^2 = 36$.

A. center: $(0, 0)$, radius: 4

B. center: $(-1, 1)$, radius: 4

C. center: $(0, 0)$, radius: 6

D. center: $(-1, -1)$, radius: 6

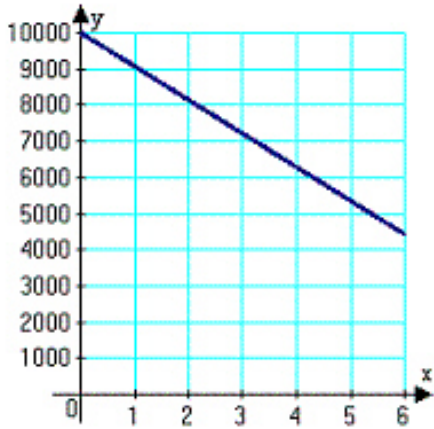
E. center: $(-6, -4)$, radius: 6

$$(x - 4)^2 + (y - 9)^2 = 49$$

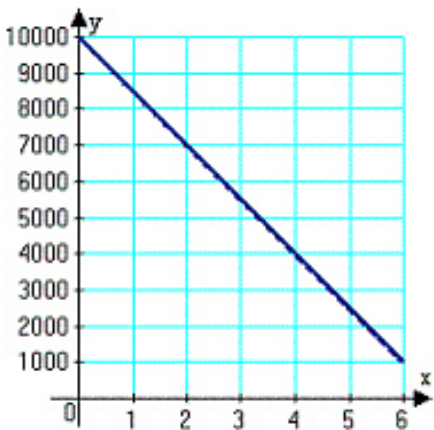
15. Find the center and radius of the circle .

- A. center: $(9, 4)$, radius 7
- B. center: $(4, 9)$, radius 49
- C. center: $(-4, -9)$, radius 7
- D. center: $(-4, -9)$, radius 49
- E. center: $(4, 9)$, radius 7

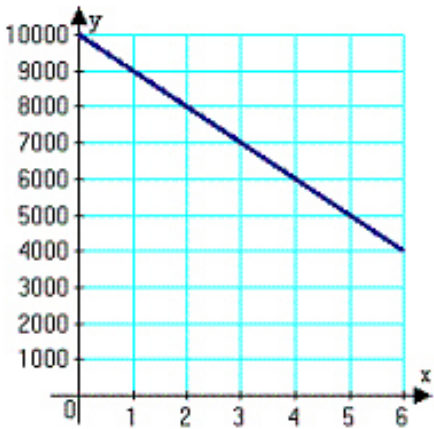
16. You purchase a jet ski for \$10,000. The depreciated value, y , after x years is given by $y = 10,000 - 1,000x$. Sketch the graph of the equation given $0 \leq x \leq 6$.



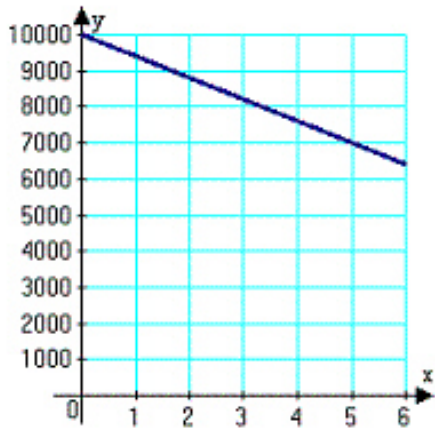
A.



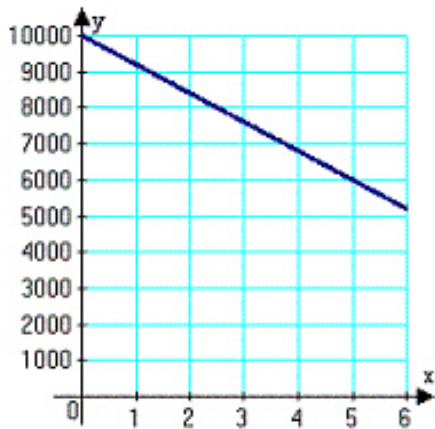
B.



C.



D.



E.

17. Determine whether the equation $3(x - 2) = 3x - 6$ is an identity or a conditional equation. If conditional, indicate the condition.

- A. conditional with $x = 2$ satisfying the equation
- B. conditional with $x = 0$ satisfying the equation
- C. identity
- D. conditional with $x = -2$ satisfying the equation
- E. conditional with no solution

$$-6(x - 1) = -6x + 12$$

18. Determine whether the equation is an identity or a conditional equation. If conditional, indicate the condition.

A. conditional with $x = 0$ satisfying the equation

$$x = \frac{1}{2}$$

B. conditional with _____ satisfying the equation

C. identity

D. conditional with no solution

$$x = -\frac{1}{2}$$

E. conditional with _____ satisfying the equation

$$-4(x + 2) + 4x = -4x + 2$$

19. Determine whether the equation is an identity or a conditional equation. If conditional, indicate the condition.

$$x = \frac{5}{2}$$

A. conditional with _____ satisfying the equation

B. conditional with $x = 0$ satisfying the equation

$$x = -\frac{3}{2}$$

C. conditional with _____ satisfying the equation

D. conditional with no solution

E. identity

20. Solve the equation $8 - 5x = 6$.

$$x = -\frac{4}{5}$$

A.

$$x = -\frac{28}{5}$$

B.

$$x = \frac{2}{5}$$

C.

$$x = -\frac{14}{5}$$

D.

$$x = -\frac{2}{15}$$

E.

21. Solve the equation $-(x + 6) - 1 = 6(x - 6)$.

A. $x = -\frac{43}{7}$

B.

$x = -\frac{29}{7}$

C.

$x = \frac{6}{1}$

D.

$x = \frac{1}{7}$

E.

$x = \frac{29}{7}$

E.

$$\frac{1}{7}(z + 2) - \frac{1}{2}(z + 3) = 0$$

22. Solve the equation

A. $z = \frac{34}{5}$

B.

$z = -\frac{17}{5}$

C.

$z = \frac{5}{1}$

D.

$z = \frac{153}{5}$

E.

$z = -\frac{153}{5}$

E.

23. Solve the equation $0.7x + 0.3(3 - x) = 3$.

A. 6

B. 5.25

C. 21

D. 10.5

E. 2.625

24. Solve the equation $2(x - 5) + 5(x + 6) = 4(x + 7)$.

$$x = \frac{10}{3}$$

A.

$$x = -\frac{10}{3}$$

B.

$$x = -\frac{20}{3}$$

C.

$$x = \frac{8}{3}$$

D.

$$x = -\frac{8}{3}$$

E.

$$\frac{6+y}{y} + \frac{5+y}{y} = -7$$

25. Solve the equation

$$x = -\frac{11}{9}$$

A.

$$x = -\frac{1}{9}$$

B.

$$x = \frac{11}{9}$$

C.

$$x = -\frac{23}{9}$$

D.

$$x = -\frac{22}{9}$$

E.

$$\frac{3}{(x-8)(x-3)} = \frac{1}{(x-8)} + \frac{8}{x-3}$$

26. Solve the equation

A. $x = \frac{2}{3}$

B.

$x = \frac{25}{9}$

C.

$x = \frac{70}{9}$

D.

$x = \frac{73}{9}$

E.

$x = \frac{58}{9}$

F.

27. Solve the equation $(x-2)^2 + 4 = (x-3)^2$.

A. $x = \frac{7}{2}$

B.

$x = -\frac{1}{2}$

C.

$x = -\frac{9}{2}$

D.

$x = \frac{1}{2}$

E.

$x = -\frac{7}{2}$

F.

28. Write the following quadratic equation in standard form.

$$-16x^2 = 20 + 12x$$

A. $-16x^2 - 12x = 20$

B. $16x^2 + 12x + 20 = 0$

C. $12x - 16x^2 + 20 = 0$

D. $20 - 16x^2 + 12x = 0$

E. $-16x^2 + 20 + 12x = 0$

29. Write the following quadratic equation in standard form.

$$5(x^2 + 2) = 9x$$

A. $5x^2 + 10 - 9x = 0$

$5(x^2 + 2) - 9x = 0$

B.

C. $5x^2 + 10 = 9x$

D. $5x^2 - 9x = -10$

E. $5x^2 - 9x + 10 = 0$

30. Write the following quadratic equation in standard form.

$$x(x - 3) = x - 9$$

A. $x^2 - 4x - 9 = 0$

B. $x^2 - 4x + 9 = 0$

C. $x^2 + 4x + 9 = 0$

D. $x^2 - 4x = -9$

E. $x^2 - 3x = -9$

31. Solve the following quadratic equation by factoring.

$$-5x^2 + 27x - 10 = 0$$

A. $x = -2, x = 5$

$$x = \frac{2}{5}, x = -5$$

B.

$$x = -\frac{2}{5}, x = 5$$

C.

$$x = -\frac{2}{5}, x = -5$$

D.

$$x = \frac{2}{5}, x = 5$$

E.

32. Solve the equation $4x^2 = 25$ by extracting square roots.

$$x = \frac{25}{2}, \frac{25}{2}$$

A.

$$x = \frac{25}{4}$$

B.

$$x = \frac{5}{4}, -\frac{5}{4}$$

C.

$$x = \frac{5}{2}$$

D.

$$x = \frac{5}{2}, -\frac{5}{2}$$

E.

33. Solve the equation $(9x + 5)^2 = 2$ by extracting square roots.

$$x = \frac{-5 + \sqrt{2}}{9}, \quad \frac{-5 - \sqrt{2}}{9}$$

A.

$$x = -\frac{1}{3}, \quad -\frac{7}{9}$$

B.

$$x = \frac{5 + \sqrt{2}}{9}, \quad \frac{5 - \sqrt{2}}{9}$$

C.

$$x = \frac{-5 + \sqrt{2}}{9}$$

D.

$$x = -\frac{1}{3}$$

E.

34. Solve the equation $(x - 3)^2 = (x + 8)^2$ by extracting square roots.

A. $x = 0$

$$x = \frac{5}{2}$$

B.

$$x = -\frac{5}{2}$$

C.

D. no solution

$$x = -\frac{5}{2}, \quad \frac{5}{2}$$

E.

35. Solve the following quadratic equation by completing the square.

$$x^2 - 2x - 8 = 0$$

A. $x = 2, \quad x = -4$

B. $x = 2, \quad x = -2$

C. $x = -2$

D. $x = 3, \quad x = -3$

E. $x = -2, \quad x = 4$

36. Solve the following quadratic equation by completing the square.

$$64x^2 = 160x - 91$$

$$x = \frac{7}{8}$$

A.

$$x = -\frac{7}{8}$$

B.

$$x = \frac{7}{8}, \frac{13}{8}$$

C.

$$x = -\frac{7}{8}, -\frac{13}{8}$$

D.

E. $x = 7, 13$

37. Use the Quadratic Formula to solve $36x^2 - 48x + 14 = 0$.

$$x = \frac{-\sqrt{2}+4}{6}, x = \frac{\sqrt{2}+4}{6}$$

A.

$$x = \frac{-\sqrt{3}+5}{6}, x = \frac{\sqrt{3}+5}{6}$$

B.

$$x = \frac{-\sqrt{3}+4}{6}, x = \frac{\sqrt{3}+4}{6}$$

C.

$$x = \frac{-\sqrt{2}+3}{6}, x = \frac{\sqrt{2}+3}{6}$$

D.

$$x = \frac{-\sqrt{2}+5}{6}, x = \frac{\sqrt{2}+3}{6}$$

E.

38. Use the Quadratic Formula to solve $x^2 + 20x + 98 = 0$.

A. $x = -8, x = -12$

B. $x = -\sqrt{2} - 10, x = \sqrt{2} - 10$

C. $x = -\sqrt{3} - 10, x = \sqrt{3} - 10$

D. $x = 10, x = -10$

E. $x = -\sqrt{2} - 9, x = \sqrt{2} - 9$

$$\left(\frac{10}{7}x - 14\right)^2 = 20x$$

39. Use the Quadratic Formula to solve

$$x = \frac{98 + 49\sqrt{5}}{20}, x = \frac{98 - 49\sqrt{5}}{20}$$

A.

$$x = \frac{147 + 49\sqrt{3}}{20}, x = \frac{147 - 49\sqrt{3}}{20}$$

B.

$$x = \frac{147 + 49\sqrt{3}}{10}, x = \frac{147 - 49\sqrt{3}}{10}$$

C.

$$x = \frac{147 + 49\sqrt{5}}{20}, x = \frac{147 - 49\sqrt{5}}{20}$$

D.

$$x = \frac{147 + 49\sqrt{5}}{10}, x = \frac{147 - 49\sqrt{5}}{10}$$

E.

40. Use the Quadratic Formula to solve the equation $2.3x^2 - 0.1x - 0.9 = 0$ (Round your answer to three decimal places.)

A. $x = -1.408, x = -0.509$

B. $x = 2.115, x = -3.815$

C. $x = 0.648, x = -0.604$

D. $x = 1.914, x = -3.162$

E. $x = -0.493, x = 1.541$

41. Use the Quadratic Formula to solve the equation $-350x^2 + 325x + 550 = 0$ (Round your answer to three decimal places.)

A. $x = -2.928, x = 1.896$

B. $x = 0.394, x = -0.757$

C. $x = 0.595, x = -1.410$

D. $x = -2.013, x = 3.946$

E. $x = -0.872, x = 1.801$

42. Solve the following quadratic equation using any convenient method.

$$15x^2 = 10x$$

$$x = \frac{2}{3}, x = 0$$

A.

B. $x = 10$

$$x = \frac{2}{3}, -\frac{2}{3}$$

C.

$$x = \frac{2}{3}$$

D.

E. $x = 10, x = 15$

43. Solve the following quadratic equation using any convenient method.

$$(-4x - 9)^2 = 16x^2$$

$$x = \frac{9}{4}, x = 0$$

A.

$$x = -\frac{9}{4}$$

B.

$$x = \frac{9}{8}$$

C.

$$x = -\frac{9}{8}$$

D.

$$x = \frac{9}{4}, x = -\frac{9}{4}$$

E.

44. Solve the equation and write complex solutions in standard form.

$$x^2 - 10x + 41 = 0$$

- A. $x = -20 - 4i, -20 + 4i$
- B. $x = -4 + 5i, -4 - 5i$
- C. $x = 5 + 16i, 5 - 16i$
- D. $x = 5 - 4i, 5 + 4i$
- E. $x = -4 + 25i, -4 - 25i$

45. Solve the equation and write complex solutions in standard form.

$$x^2 + 6x + 16 = 0$$

- A. $x = -3 + \sqrt{7}i, -3 - \sqrt{7}i$
- B. $x = 7 + \sqrt{10}i, 7 - \sqrt{10}i$
- C. $x = -3 + \sqrt{10}i, -3 - \sqrt{10}i$
- D. $x = 7 + \sqrt{7}i, 7 - \sqrt{7}i$
- E. $x = 10 + \sqrt{7}i, 10 - \sqrt{7}i$

46. Find all solutions to the equation $x^4 - 16 = 0$.

- A. $x = -2, 2$
- B. $x = 3$
- C. $x = -3, 3$
- D. $x = 2$
- E. $x = -2$

47. Find all solutions to the following equation.

$$-32x^3 - 80x^2 + 2x + 5 = 0$$

$$x = \frac{1}{2}, \quad x = -\frac{1}{2}, \quad x = \frac{5}{2}$$

A.

$$x = \frac{1}{1}, \quad x = -\frac{1}{2}, \quad x = -\frac{2}{5}$$

B.

$$x = -\frac{1}{4}, \quad x = \frac{1}{4}, \quad x = \frac{1}{2}$$

C.

$$x = -\frac{1}{4}, \quad x = \frac{1}{4}, \quad x = -\frac{2}{5}$$

D.

$$x = -\frac{1}{4}, \quad x = \frac{1}{4}, \quad x = -\frac{5}{2}$$

E.

48. Find all solutions to the equation $36x^4 - 145x^2 + 4 = 0$.

$$x = \frac{1}{6}, \quad x = 2$$

A.

$$x = -\frac{1}{2}, \quad x = \frac{1}{6}, \quad x = -6, \quad x = -2$$

B.

$$x = -\frac{1}{2}, \quad x = \frac{1}{2}, \quad x = -2, \quad x = 2$$

C.

$$x = -\frac{1}{6}, \quad x = \frac{1}{6}, \quad x = -6, \quad x = 6$$

D.

$$x = -\frac{1}{6}, \quad x = \frac{1}{6}, \quad x = -2, \quad x = 2$$

E.

49. Find all solutions to the following equation.

$$\sqrt{2-x} - 14 = 0$$

A. $x = 194$

B. $x = 12$

C. $x = -12$

D. $x = -194$

E. $x = 198$

50. Find all solutions to the following equation.

$$\sqrt[3]{1+10x} - 3 = 0$$

A. $x = 26$

$$x = \frac{13}{5}$$

B.

$$x = \frac{27}{10}$$

C.

$$x = \frac{1}{5}$$

D.

$$x = \frac{4}{5}$$

E.

51. Find all solutions to the following equation.

$$x - \sqrt{9x+90} = -10$$

A. $x = -1, x = -10$

B. $x = 1, x = 10$

C. $x = -9, x = 9$

D. $x = -10$

E. $x = -1$

52. Find all solutions to the following equation.

$$\sqrt{4x-8} = \sqrt{4x+9}$$

$$x = -\frac{17}{4}$$

A.

B. $x = 9$

C. no solution

D. $x = -17$

E. $x = -8$

53. Find all solutions to the following equation.

$$(x - 2)^{2/3} = 25$$

A. $x = 127, x = -127$

B. no solution

C. $x = 127$

$$x = -\frac{125}{2}$$

D.

E. $x = 127, x = -123$

54. Find all solutions to the following equation.

$$\frac{7}{7x - 5} + \frac{5}{5x - 7} = 1$$

A. no solution

$$x = -1, x = -\frac{39}{35}$$

B.

C. $x = 1$

$$x = 1, x = \frac{39}{35}$$

D.

$$x = 1, x = \frac{109}{35}$$

E.

Lar_AT_8e_Ch01 Key

1. Determine which point lies on the graph of the equation $y = 7x^2 - 3x + 2$.

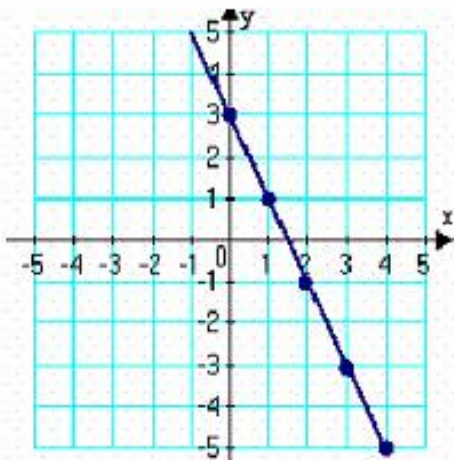
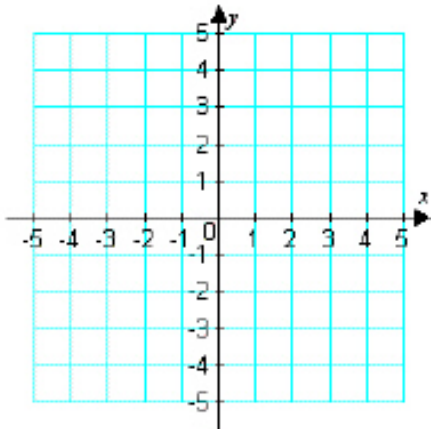
- A.** (1, 6)
- B. (2, 6)
- C. (1, 4)
- D. (3, 5)
- E. (2, 4)

2. Determine which point does **not** lie on the graph of the equation $y = -5 - |x - 3|$.

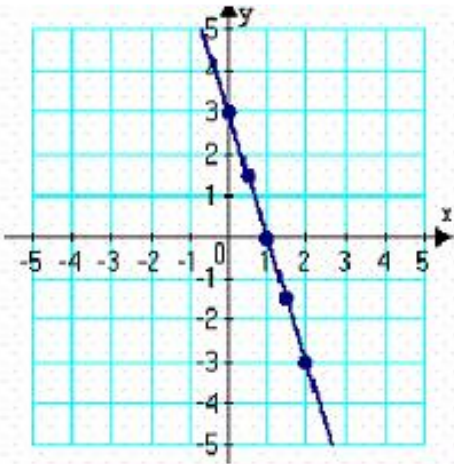
- A. (-14, -22)
- B. (-16, -24)
- C. (-5, -13)
- D.** (-8, -13)
- E. (-12, -20)

3. Create and complete a table to find the x and y coordinates of points that lie on the graph of the equation below. Plot at least 5 points along with the graph of the equation.

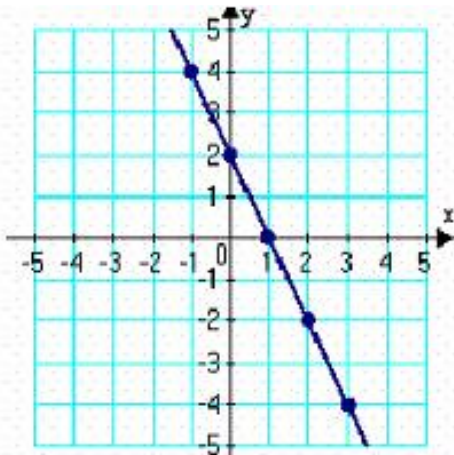
$$y = -3x + 3$$



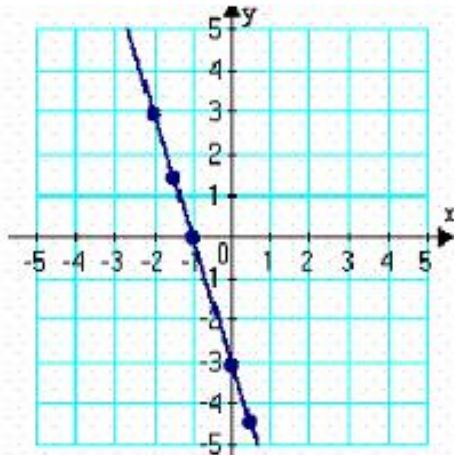
A.



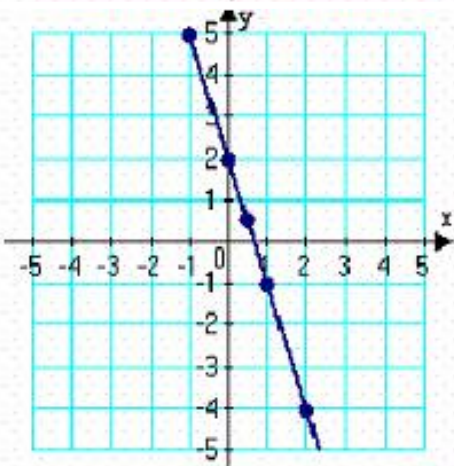
B.



C.



D.



E.

$$y = |-5x - 4|$$

4. Find the x - and y -intercepts of the graph of the equation

$$\left(-\frac{5}{4}, 0\right)$$

A. x -intercept:

y -intercept: $(0, 4)$

$$\left(-\frac{4}{5}, 0\right)$$

B. x -intercept:

y -intercept: $(0, -5)$

$$\left(-\frac{4}{5}, 0\right)$$

C. x -intercept:

y -intercept: $(0, 4)$

D. x -intercept: $(4, 0)$

y -intercept: $(0, -5)$

$$\left(-\frac{5}{4}, 0\right)$$

E. x -intercept:

y -intercept: none

5. Find the x - and y -intercepts of the graph of the equation $y^2 = -6x + 5$.

$$\left(-\frac{5}{6}, 0\right)$$

A. x -intercept:

$$\left(0, \sqrt{5}\right)$$

y -intercept:

$$\left(-\frac{5}{6}, 0\right)$$

B. x -intercept:

$$\left(0, \pm\sqrt{5}\right)$$

y -intercept:

$$\left(\frac{5}{6}, 0\right)$$

C. x -intercept:

$$\left(0, \sqrt{5}\right)$$

y -intercept:

$$\left(-\frac{5}{6}, 0\right)$$

D. x -intercept:

$$\left(0, -\sqrt{5}\right)$$

y -intercept:

$$\left(\frac{5}{6}, 0\right)$$

E. x -intercept:

$$\left(0, \pm\sqrt{5}\right)$$

y -intercept:

6. Use algebraic tests to check the following for symmetry with respect to the axes and the origin.

$$2x - 8y^{20} = 0$$

A. Symmetric with respect to the origin.

B. No symmetry.

C. Symmetric with respect to the y -axis.

D. Symmetric with respect to the x -axis.

7. Use algebraic tests to check the following for symmetry with respect to the axes and the origin.

$$y = 8x^4 - x^2 - 8$$

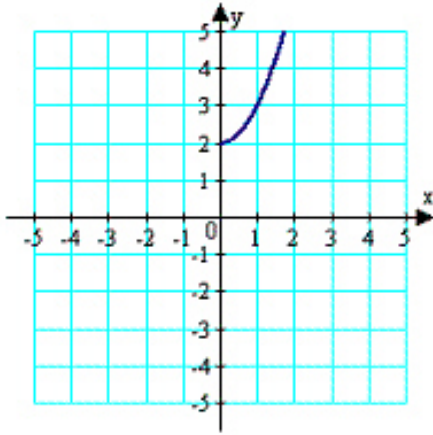
A. No symmetry.

B. Symmetric with respect to the y -axis.

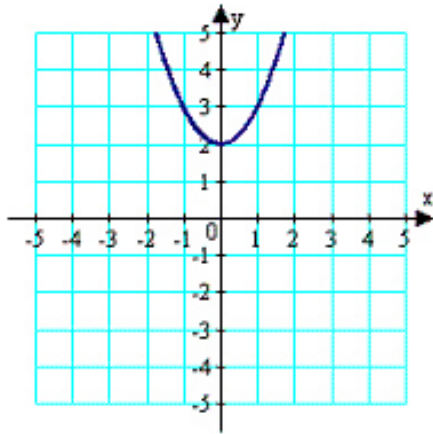
C. Symmetric with respect to the origin.

D. Symmetric with respect to the x -axis.

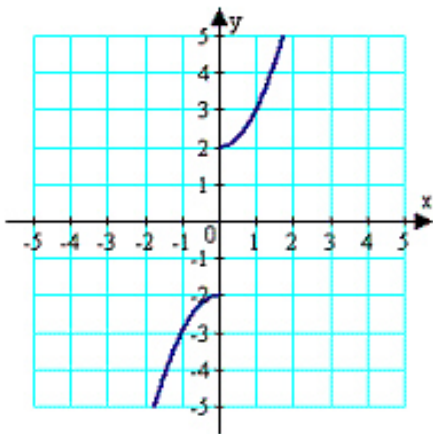
8. Assume the graph has the indicated type of symmetry. Sketch the complete graph.



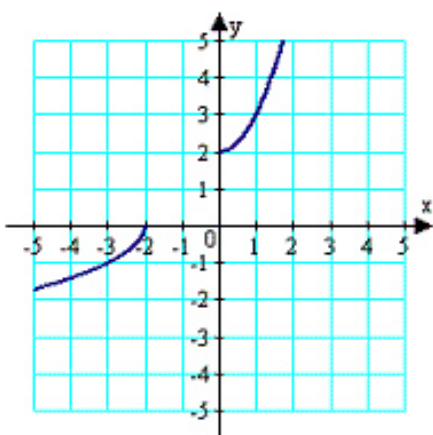
symmetric with respect to the origin



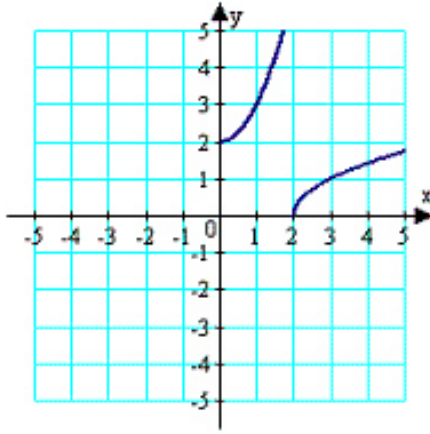
A.



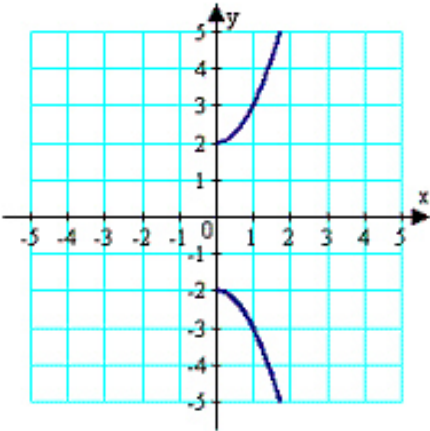
B.



C.



D.



E.

9. Find the x - and y -intercepts of the graph of the equation $y = 49 - 7x$.

A. x -intercept: $(7, 0)$

y -intercept: $(0, -7)$

B. x -intercept: $(49, 0)$

y -intercept: $(0, 7)$

C. x -intercept: $(-7, 0)$

y -intercept: $(0, -49)$

D. x -intercept: $(49, 0)$

y -intercept: $(0, 49)$

E. x -intercept: $(7, 0)$

y -intercept: $(0, 49)$

10. Find the x - and y -intercepts of the graph of the equation $y = \sqrt{9x - 8}$.

$$\left(\frac{9}{8}, 0\right)$$

A. x -intercept:

y -intercept: none

$$\left(\frac{9}{8}, 0\right)$$

B. x -intercept:

y -intercept: $(0, 9)$

$$\left(\frac{8}{9}, 0\right)$$

C. x -intercept:

y -intercept: none

D. x -intercept: $(9, 0)$

y -intercept: $(0, 8)$

E. x -intercept: $(8, 0)$

y -intercept: none

11. Write the standard form of the equation of the circle with the given characteristics.

center: $(3, 1)$; radius: 4

$$(x + 3)^2 + (y + 1)^2 = 16$$

A.

$$(x - 1)^2 + (y - 3)^2 = 4$$

B.

$$(x - 1)^2 + (y - 3)^2 = 16$$

C.

$$(x + 1)^2 + (y + 3)^2 = 4$$

D.

$$(x - 3)^2 + (y - 1)^2 = 16$$

E.

12. Write the standard form of the equation of the circle with the given characteristics.

center: $(-4, 4)$; solution point: $(-2, -6)$

$$(x+4)^2 + (y-4)^2 = 104$$

A.

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

B.

$$(x-4)^2 + (y+4)^2 = 104$$

C.

$$(x-4)^2 + (y+4)^2 = 80$$

D.

$$(x+4)^2 + (y+4)^2 = 80$$

E.

13. Write the standard form of the equation of the circle with the given characteristics.

endpoints of a diameter: $(-1, 4)$, $(7, 6)$

$$(x-3)^2 + (y-5)^2 = 17$$

A.

$$(x-5)^2 + (y-3)^2 = 17$$

B.

$$(x+3)^2 + (y+5)^2 = 17$$

C.

$$(x+3)^2 + (y-5)^2 = 221$$

D.

$$(x-3)^2 + (y+5)^2 = 221$$

E.

14. Find the center and radius of the circle $x^2 + y^2 = 36$.

A. center: $(0, 0)$, radius: 4

B. center: $(-1, 1)$, radius: 4

C. center: $(0, 0)$, radius: 6

D. center: $(-1, -1)$, radius: 6

E. center: $(-6, -4)$, radius: 6

$$(x - 4)^2 + (y - 9)^2 = 49$$

15. Find the center and radius of the circle .

A. center: $(9, 4)$, radius 7

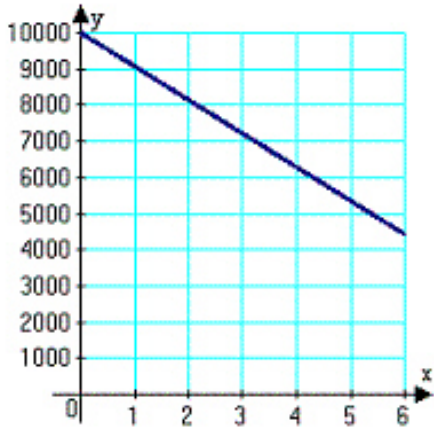
B. center: $(4, 9)$, radius 49

C. center: $(-4, -9)$, radius 7

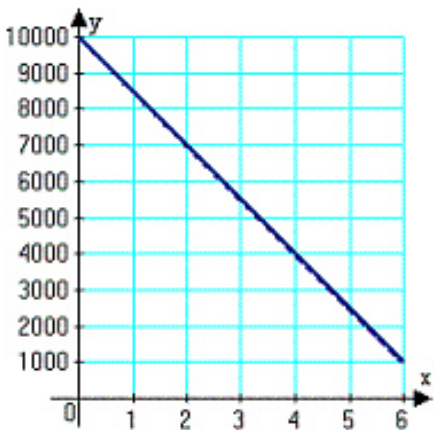
D. center: $(-4, -9)$, radius 49

E. center: $(4, 9)$, radius 7

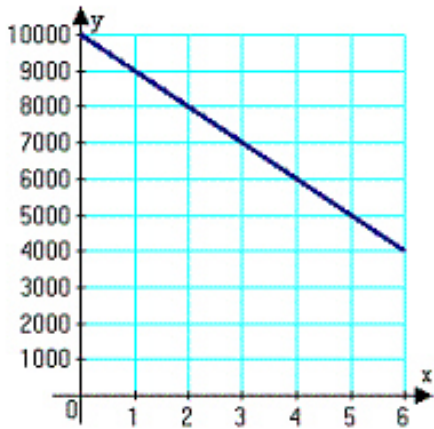
16. You purchase a jet ski for \$10,000. The depreciated value, y , after x years is given by $y = 10,000 - 1,000x$. Sketch the graph of the equation given $0 \leq x \leq 6$.



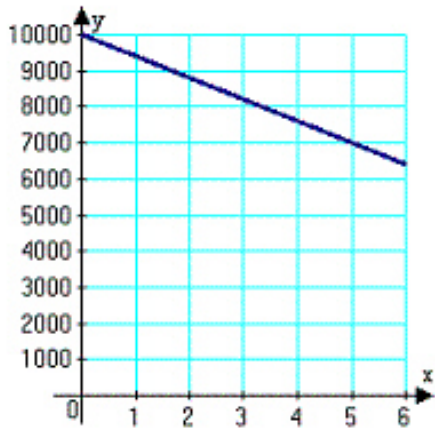
A.



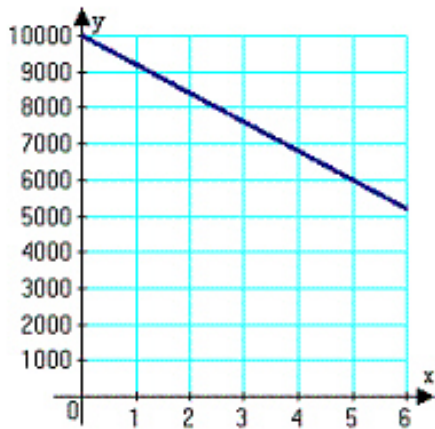
B.



C.



D.



E.

17. Determine whether the equation $3(x - 2) = 3x - 6$ is an identity or a conditional equation. If conditional, indicate the condition.

- A. conditional with $x = 2$ satisfying the equation
- B. conditional with $x = 0$ satisfying the equation
- C. identity**
- D. conditional with $x = -2$ satisfying the equation
- E. conditional with no solution

$$-6(x - 1) = -6x + 12$$

18. Determine whether the equation is an identity or a conditional equation. If conditional, indicate the condition.

A. conditional with $x = 0$ satisfying the equation

$$x = \frac{1}{2}$$

B. conditional with _____ satisfying the equation

C. identity

D. conditional with no solution

$$x = -\frac{1}{2}$$

E. conditional with _____ satisfying the equation

$$-4(x + 2) + 4x = -4x + 2$$

19. Determine whether the equation is an identity or a conditional equation. If conditional, indicate the condition.

$$x = \frac{5}{2}$$

A. conditional with _____ satisfying the equation

B. conditional with $x = 0$ satisfying the equation

$$x = -\frac{3}{2}$$

C. conditional with _____ satisfying the equation

D. conditional with no solution

E. identity

20. Solve the equation $8 - 5x = 6$.

$$x = -\frac{4}{5}$$

A.

$$x = -\frac{28}{5}$$

B.

$$x = \frac{2}{5}$$

C.

$$x = -\frac{14}{5}$$

D.

$$x = -\frac{2}{15}$$

E.

21. Solve the equation $-(x + 6) - 1 = 6(x - 6)$.

A. $x = -\frac{43}{7}$

B.

$x = -\frac{29}{7}$

C.

$x = \frac{6}{1}$

D.

$x = \frac{1}{7}$

E.

$x = \frac{29}{7}$

E.

22. Solve the equation $\frac{1}{7}(z + 2) - \frac{1}{2}(z + 3) = 0$.

A. $z = \frac{34}{5}$

B.

$z = -\frac{17}{5}$

B.

$z = \frac{5}{1}$

C.

$z = \frac{153}{5}$

D.

$z = -\frac{153}{5}$

E.

23. Solve the equation $0.7x + 0.3(3 - x) = 3$.

A. 6

B. 5.25

C. 21

D. 10.5

E. 2.625

24. Solve the equation $2(x - 5) + 5(x + 6) = 4(x + 7)$.

$$x = \frac{10}{3}$$

A.

$$x = -\frac{10}{3}$$

B.

$$x = -\frac{20}{3}$$

C.

$$x = \frac{8}{3}$$

D.

$$x = -\frac{8}{3}$$

E.

$$\frac{6+y}{y} + \frac{5+y}{y} = -7$$

25. Solve the equation

$$x = -\frac{11}{9}$$

A.

$$x = -\frac{1}{9}$$

B.

$$x = \frac{11}{9}$$

C.

$$x = -\frac{23}{9}$$

D.

$$x = -\frac{22}{9}$$

E.

$$\frac{3}{(x-8)(x-3)} = \frac{1}{(x-8)} + \frac{8}{x-3}$$

26. Solve the equation

A. $x = \frac{2}{3}$

A.

B. $x = \frac{25}{9}$

B.

C. $x = \frac{70}{9}$

C.

D. $x = \frac{73}{9}$

D.

E. $x = \frac{58}{9}$

E.

27. Solve the equation $(x-2)^2 + 4 = (x-3)^2$.

A. $x = \frac{7}{2}$

A.

B. $x = -\frac{1}{2}$

B.

C. $x = -\frac{9}{2}$

C.

D. $x = \frac{1}{2}$

D.

E. $x = -\frac{7}{2}$

E.

28. Write the following quadratic equation in standard form.

$$-16x^2 = 20 + 12x$$

A. $-16x^2 - 12x = 20$

B. $16x^2 + 12x + 20 = 0$

C. $12x - 16x^2 + 20 = 0$

D. $20 - 16x^2 + 12x = 0$

E. $-16x^2 + 20 + 12x = 0$

29. Write the following quadratic equation in standard form.

$$5(x^2 + 2) = 9x$$

A. $5x^2 + 10 - 9x = 0$

$5(x^2 + 2) - 9x = 0$

B.

C. $5x^2 + 10 = 9x$

D. $5x^2 - 9x = -10$

E. $5x^2 - 9x + 10 = 0$

30. Write the following quadratic equation in standard form.

$$x(x - 3) = x - 9$$

A. $x^2 - 4x - 9 = 0$

B. $x^2 - 4x + 9 = 0$

C. $x^2 + 4x + 9 = 0$

D. $x^2 - 4x = -9$

E. $x^2 - 3x = -9$

31. Solve the following quadratic equation by factoring.

$$-5x^2 + 27x - 10 = 0$$

A. $x = -2, x = 5$

$$x = \frac{2}{5}, x = -5$$

B.

$$x = -\frac{2}{5}, x = 5$$

C.

$$x = -\frac{2}{5}, x = -5$$

D.

$$x = \frac{2}{5}, x = 5$$

E.

32. Solve the equation $4x^2 = 25$ by extracting square roots.

$$x = \frac{25}{2}, \frac{25}{2}$$

A.

$$x = \frac{25}{4}$$

B.

$$x = \frac{5}{4}, -\frac{5}{4}$$

C.

$$x = \frac{5}{2}$$

D.

$$x = \frac{5}{2}, -\frac{5}{2}$$

E.

33. Solve the equation $(9x + 5)^2 = 2$ by extracting square roots.

$$x = \frac{-5 + \sqrt{2}}{9}, \quad \frac{-5 - \sqrt{2}}{9}$$

A.

$$x = -\frac{1}{3}, \quad -\frac{7}{9}$$

B.

$$x = \frac{5 + \sqrt{2}}{9}, \quad \frac{5 - \sqrt{2}}{9}$$

C.

$$x = \frac{-5 + \sqrt{2}}{9}$$

D.

$$x = -\frac{1}{3}$$

E.

34. Solve the equation $(x - 3)^2 = (x + 8)^2$ by extracting square roots.

A. $x = 0$

$$x = \frac{5}{2}$$

B.

$$x = -\frac{5}{2}$$

C.

D. no solution

$$x = -\frac{5}{2}, \quad \frac{5}{2}$$

E.

35. Solve the following quadratic equation by completing the square.

$$x^2 - 2x - 8 = 0$$

A. $x = 2, \quad x = -4$

B. $x = 2, \quad x = -2$

C. $x = -2$

D. $x = 3, \quad x = -3$

E. $x = -2, \quad x = 4$

36. Solve the following quadratic equation by completing the square.

$$64x^2 = 160x - 91$$

$$x = \frac{7}{8}$$

A.

$$x = -\frac{7}{8}$$

B.

$$x = \frac{7}{8}, \frac{13}{8}$$

C.

$$x = -\frac{7}{8}, -\frac{13}{8}$$

D.

E. $x = 7, 13$

37. Use the Quadratic Formula to solve $36x^2 - 48x + 14 = 0$.

$$x = \frac{-\sqrt{2}+4}{6}, x = \frac{\sqrt{2}+4}{6}$$

A.

$$x = \frac{-\sqrt{3}+5}{6}, x = \frac{\sqrt{3}+5}{6}$$

B.

$$x = \frac{-\sqrt{3}+4}{6}, x = \frac{\sqrt{3}+4}{6}$$

C.

$$x = \frac{-\sqrt{2}+3}{6}, x = \frac{\sqrt{2}+3}{6}$$

D.

$$x = \frac{-\sqrt{2}+5}{6}, x = \frac{\sqrt{2}+3}{6}$$

E.

38. Use the Quadratic Formula to solve $x^2 + 20x + 98 = 0$.

A. $x = -8, x = -12$

B. $x = -\sqrt{2} - 10, x = \sqrt{2} - 10$

C. $x = -\sqrt{3} - 10, x = \sqrt{3} - 10$

D. $x = 10, x = -10$

E. $x = -\sqrt{2} - 9, x = \sqrt{2} - 9$

$$\left(\frac{10}{7}x - 14\right)^2 = 20x$$

39. Use the Quadratic Formula to solve

$$x = \frac{98 + 49\sqrt{5}}{20}, x = \frac{98 - 49\sqrt{5}}{20}$$

A.

$$x = \frac{147 + 49\sqrt{3}}{20}, x = \frac{147 - 49\sqrt{3}}{20}$$

B.

$$x = \frac{147 + 49\sqrt{3}}{10}, x = \frac{147 - 49\sqrt{3}}{10}$$

C.

$$x = \frac{147 + 49\sqrt{5}}{20}, x = \frac{147 - 49\sqrt{5}}{20}$$

D.

$$x = \frac{147 + 49\sqrt{5}}{10}, x = \frac{147 - 49\sqrt{5}}{10}$$

E.

40. Use the Quadratic Formula to solve the equation $2.3x^2 - 0.1x - 0.9 = 0$ (Round your answer to three decimal places.)

A. $x = -1.408, x = -0.509$

B. $x = 2.115, x = -3.815$

C. $x = 0.648, x = -0.604$

D. $x = 1.914, x = -3.162$

E. $x = -0.493, x = 1.541$

41. Use the Quadratic Formula to solve the equation $-350x^2 + 325x + 550 = 0$ (Round your answer to three decimal places.)

A. $x = -2.928, x = 1.896$

B. $x = 0.394, x = -0.757$

C. $x = 0.595, x = -1.410$

D. $x = -2.013, x = 3.946$

E. $x = -0.872, x = 1.801$

42. Solve the following quadratic equation using any convenient method.

$$15x^2 = 10x$$

$$x = \frac{2}{3}, x = 0$$

A.

B. $x = 10$

$$x = \frac{2}{3}, -\frac{2}{3}$$

C.

$$x = \frac{2}{3}$$

D.

E. $x = 10, x = 15$

43. Solve the following quadratic equation using any convenient method.

$$(-4x - 9)^2 = 16x^2$$

$$x = \frac{9}{4}, x = 0$$

A.

$$x = -\frac{9}{4}$$

B.

$$x = \frac{9}{8}$$

C.

$$x = -\frac{9}{8}$$

D.

$$x = \frac{9}{4}, x = -\frac{9}{4}$$

E.

44. Solve the equation and write complex solutions in standard form.

$$x^2 - 10x + 41 = 0$$

A. $x = -20 - 4i, -20 + 4i$

B. $x = -4 + 5i, -4 - 5i$

C. $x = 5 + 16i, 5 - 16i$

D. $x = 5 - 4i, 5 + 4i$

E. $x = -4 + 25i, -4 - 25i$

45. Solve the equation and write complex solutions in standard form.

$$x^2 + 6x + 16 = 0$$

A. $x = -3 + \sqrt{7}i, -3 - \sqrt{7}i$

B. $x = 7 + \sqrt{10}i, 7 - \sqrt{10}i$

C. $x = -3 + \sqrt{10}i, -3 - \sqrt{10}i$

D. $x = 7 + \sqrt{7}i, 7 - \sqrt{7}i$

E. $x = 10 + \sqrt{7}i, 10 - \sqrt{7}i$

46. Find all solutions to the equation $x^4 - 16 = 0$.

A. $x = -2, 2$

B. $x = 3$

C. $x = -3, 3$

D. $x = 2$

E. $x = -2$

47. Find all solutions to the following equation.

$$-32x^3 - 80x^2 + 2x + 5 = 0$$

$$x = \frac{1}{2}, \quad x = -\frac{1}{2}, \quad x = \frac{5}{2}$$

A.

$$x = \frac{1}{1}, \quad x = -\frac{1}{2}, \quad x = -\frac{2}{5}$$

B.

$$x = -\frac{1}{4}, \quad x = \frac{1}{4}, \quad x = \frac{1}{2}$$

C.

$$x = -\frac{1}{4}, \quad x = \frac{1}{4}, \quad x = -\frac{2}{5}$$

D.

$$x = -\frac{1}{4}, \quad x = \frac{1}{4}, \quad x = -\frac{5}{2}$$

E.

48. Find all solutions to the equation $36x^4 - 145x^2 + 4 = 0$.

$$x = \frac{1}{6}, \quad x = 2$$

A.

$$x = -\frac{1}{2}, \quad x = \frac{1}{6}, \quad x = -6, \quad x = -2$$

B.

$$x = -\frac{1}{2}, \quad x = \frac{1}{2}, \quad x = -2, \quad x = 2$$

C.

$$x = -\frac{1}{6}, \quad x = \frac{1}{6}, \quad x = -6, \quad x = 6$$

D.

$$x = -\frac{1}{6}, \quad x = \frac{1}{6}, \quad x = -2, \quad x = 2$$

E.

49. Find all solutions to the following equation.

$$\sqrt{2-x} - 14 = 0$$

A. $x = 194$

B. $x = 12$

C. $x = -12$

D. $x = -194$

E. $x = 198$

50. Find all solutions to the following equation.

$$\sqrt[3]{1+10x} - 3 = 0$$

A. $x = 26$

$$x = \frac{13}{5}$$

B.

$$x = \frac{27}{10}$$

C.

$$x = \frac{1}{5}$$

D.

$$x = \frac{4}{5}$$

E.

51. Find all solutions to the following equation.

$$x - \sqrt{9x+90} = -10$$

A. $x = -1, x = -10$

B. $x = 1, x = 10$

C. $x = -9, x = 9$

D. $x = -10$

E. $x = -1$

52. Find all solutions to the following equation.

$$\sqrt{4x-8} = \sqrt{4x+9}$$

$$x = -\frac{17}{4}$$

A.

B. $x = 9$

C. no solution

D. $x = -17$

E. $x = -8$

53. Find all solutions to the following equation.

$$(x - 2)^{2/3} = 25$$

A. $x = 127, x = -127$

B. no solution

C. $x = 127$

$$x = -\frac{125}{2}$$

D.

E. $x = 127, x = -123$

54. Find all solutions to the following equation.

$$\frac{7}{7x - 5} + \frac{5}{5x - 7} = 1$$

A. no solution

$$x = -1, x = -\frac{39}{35}$$

B.

C. $x = 1$

$$x = 1, x = \frac{39}{35}$$

D.

$$x = 1, x = \frac{109}{35}$$

E.