Lar_AT_8e_Ch01

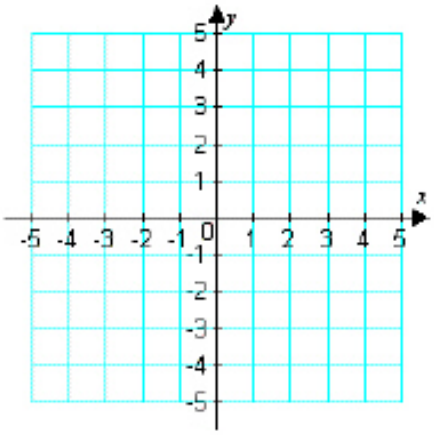
Student: _____

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)

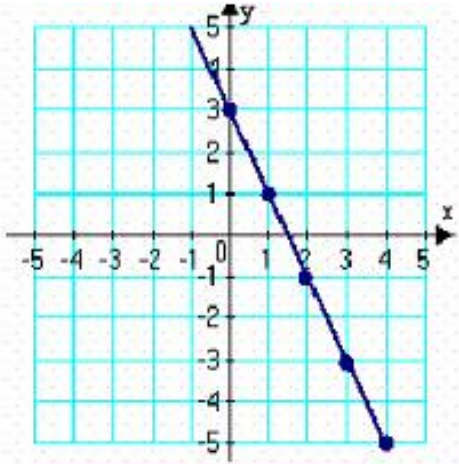
2. Determine which point does **not** lie on the graph of the equation $y = -5 - |x - 3|$.
A. (–14, –22)
B. (–16, –24)
C. (–5, –13)
D. (–8, –13)
E. (–12, –20)

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.



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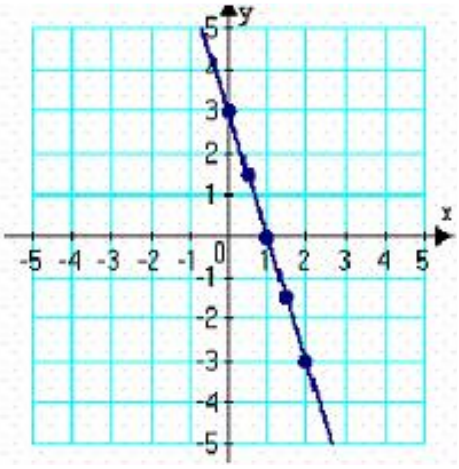

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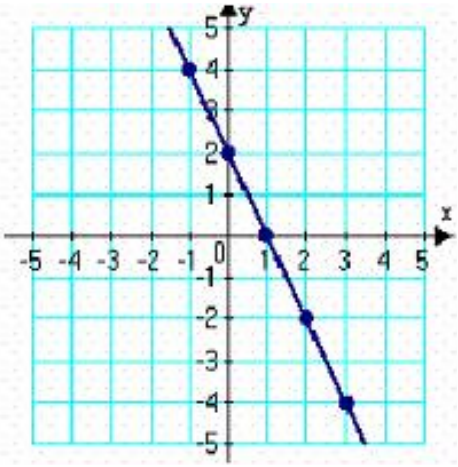
y
x
5
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-2
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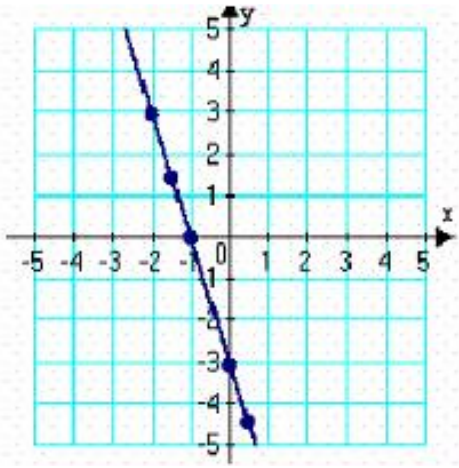
-4
-5

D.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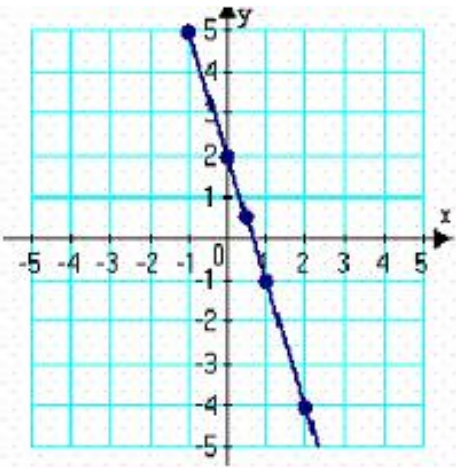
E.


y
x
5
4
3
2
1
-5 -4 -3 -2 -1 0 1 2 3 4 5
-1
-2
-3
-4
-5

4. Find the *x*- and *y*-intercepts of the graph of the equation $y = |-5x - 4|$.

A. *x*-intercept: $\left(-\frac{5}{4}, 0\right)$
y-intercept: $(0, 4)$

B. *x*-intercept: $\left(-\frac{4}{5}, 0\right)$
y-intercept: $(0, -5)$

C. *x*-intercept: $\left(-\frac{4}{5}, 0\right)$
y-intercept: $(0, 4)$

D. *x*-intercept: $(4, 0)$
y-intercept: $(0, -5)$

E. *x*-intercept: $\left(-\frac{5}{4}, 0\right)$
y-intercept: none

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

A. *x*-intercept: $\left(-\frac{5}{6}, 0\right)$
y-intercept: $\left(0, \sqrt{5}\right)$

B. *x*-intercept: $\left(-\frac{5}{6}, 0\right)$
y-intercept: $\left(0, \pm\sqrt{5}\right)$

C. *x*-intercept: $\left(\frac{5}{6}, 0\right)$
y-intercept: $\left(0, \sqrt{5}\right)$

D. *x*-intercept: $\left(-\frac{5}{6}, 0\right)$
y-intercept: $\left(0, -\sqrt{5}\right)$

E. *x*-intercept: $\left(\frac{5}{6}, 0\right)$
y-intercept: $\left(0, \pm\sqrt{5}\right)$

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

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

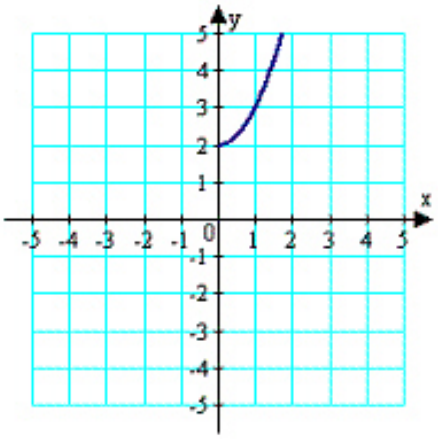
A. Symmetric with respect to the origin.
B. No symmetry.
C. Symmetric with respect to the *y*-axis.
D. Symmetric with respect to the *x*-axis.

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

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

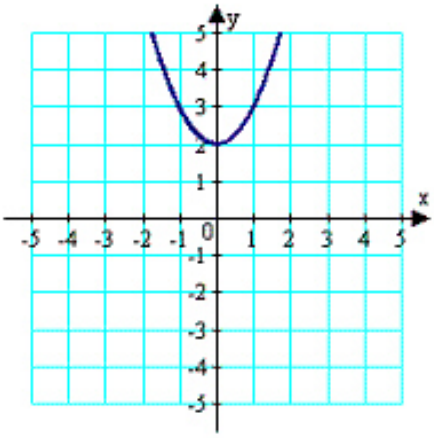
A. No symmetry.
B. Symmetric with respect to the *y*-axis.
C. Symmetric with respect to the origin.
D. Symmetric with respect to the *x*-axis.

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

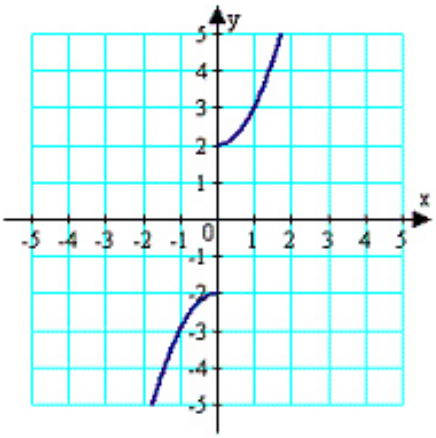


symmetric with respect to the origin

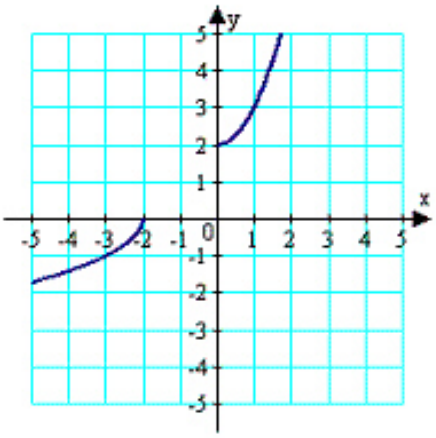
A.



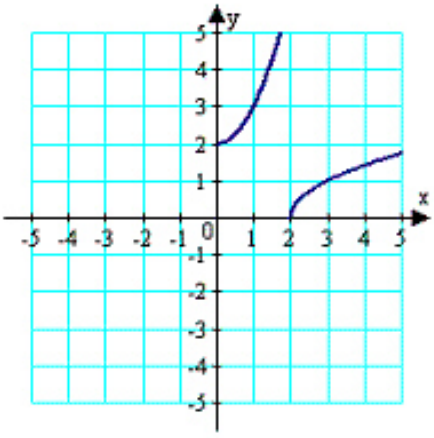
B.



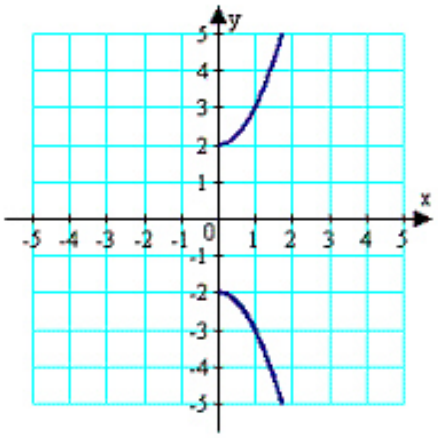
C.



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 $y = \sqrt{9x - 8}$.

A. *x*-intercept: $\left(\frac{9}{8}, 0\right)$
y-intercept: none

B. *x*-intercept: $\left(\frac{9}{8}, 0\right)$
y-intercept: $(0, 9)$

C. *x*-intercept: $\left(\frac{8}{9}, 0\right)$
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

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

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

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

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

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

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

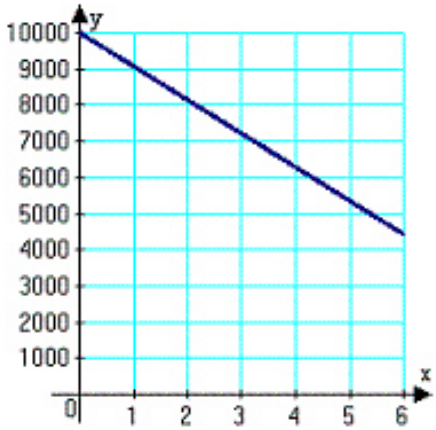
C. center: $(-4, -9)$, radius 7

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

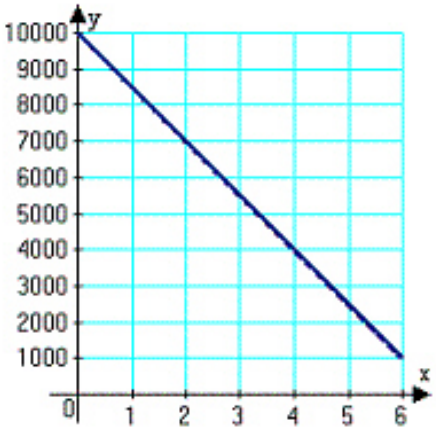
E. center: $(4, 9)$, radius 7

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 $0 \le x \le 6$.

A.



B.



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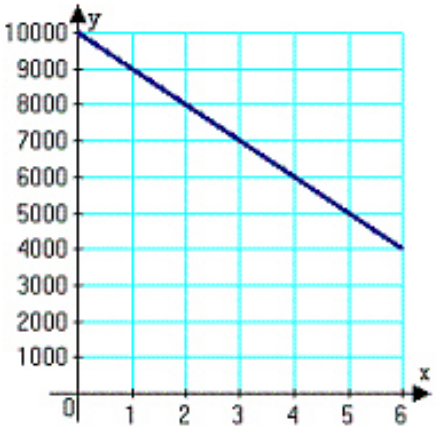
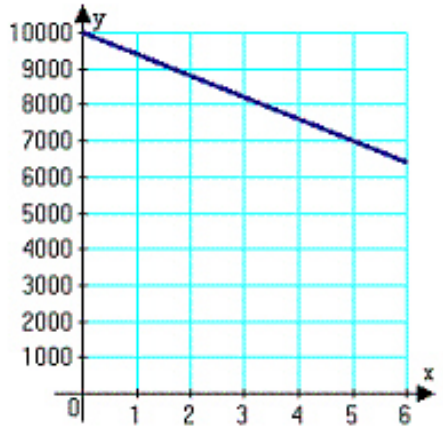
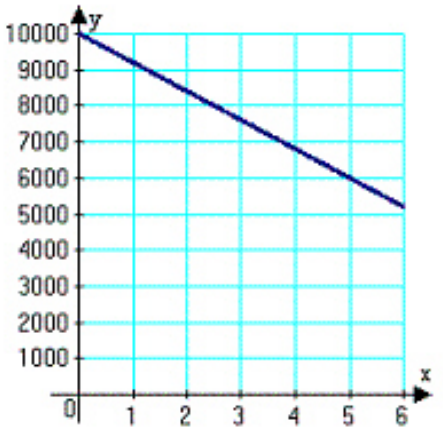


D.



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

18. Determine whether the equation $-6(x-1) = -6x + 12$ 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

19. Determine whether the equation $-4(x+2) + 4x = -4x + 2$ 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 $8 - 5x = 6$.

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

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

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

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

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

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

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

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

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

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

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

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

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 $2(x-5)+5(x+6)=4(x+7)$.

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

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

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

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

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

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

25. Solve the equation

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

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

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

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

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

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

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

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

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.

$5\left(x^2 + 2\right) = 9x$

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

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

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. $x = -2, \quad x = 5$

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

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

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

E. $x = \frac{2}{5}, \quad x = 5$

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

A. $x = \frac{25}{2}, \quad \frac{25}{2}$

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

C. $x = \frac{5}{4}, \quad -\frac{5}{4}$

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

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

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.

$64x^2 = 160x - 91$

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

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

C. $x = \frac{7}{8}, \quad \frac{13}{8}$

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

E. $x = 7, \quad 13$

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

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

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

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

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

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

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

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

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

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

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

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

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

39. Use the Quadratic Formula to solve .

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

A.

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

B.

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

C.

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

D.

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

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. $x = -1.408, \quad x = -0.509$

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

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

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

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

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

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

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

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

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

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

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

$15x^2 = 10x$

A. $x = \frac{2}{3}, \quad x = 0$

B. $x = 10$

C. $x = \frac{2}{3}, \quad -\frac{2}{3}$

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

E. $x = 10, \quad x = 15$

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

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

A. $x = \frac{9}{4}, \quad x = 0$

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

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

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

E. $x = \frac{9}{4}, \quad x = -\frac{9}{4}$

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.

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

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

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

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

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

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

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

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

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

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

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

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

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. $x = 26$

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

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

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

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

51. Find all solutions to the following equation.

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

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

B. $x = 1, \quad x = 10$

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

D. $x = -10$

E. $x = -1$

52. Find all solutions to the following equation.

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

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

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. $x = 127, \quad x = -127$

B. no solution

C. $x = 127$

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

D.

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

54. Find all solutions to the following equation.

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

A. no solution

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

B.

C. $x = 1$

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

D.

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

E.

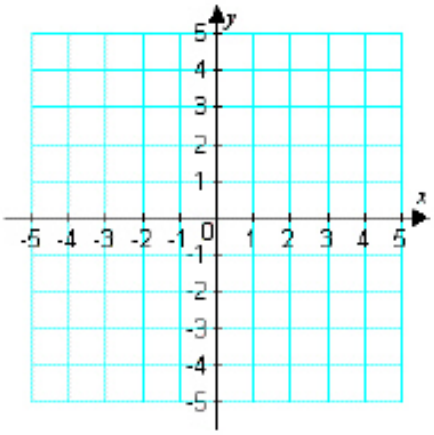
Lar_AT_8e_Ch01 Key

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)

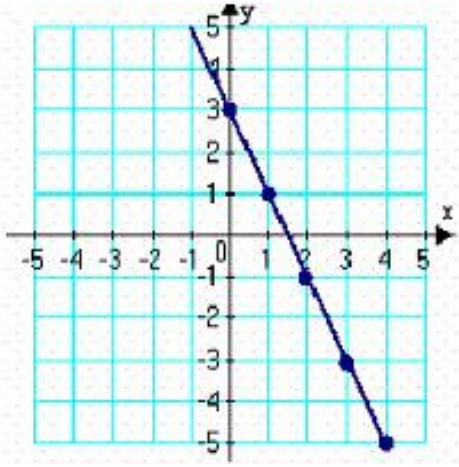
2. Determine which point does **not** lie on the graph of the equation $y = -5 - |x - 3|$.
A. (–14, –22)
B. (–16, –24)
C. (–5, –13)
D. (–8, –13)
E. (–12, –20)

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.



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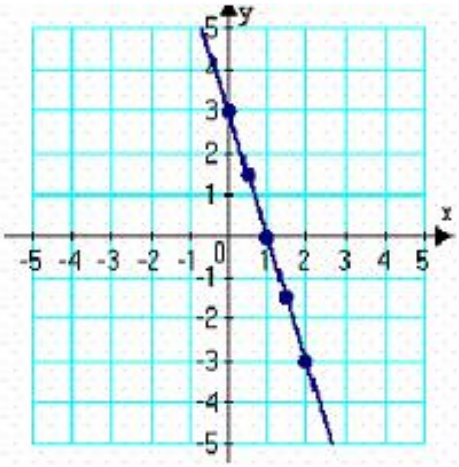

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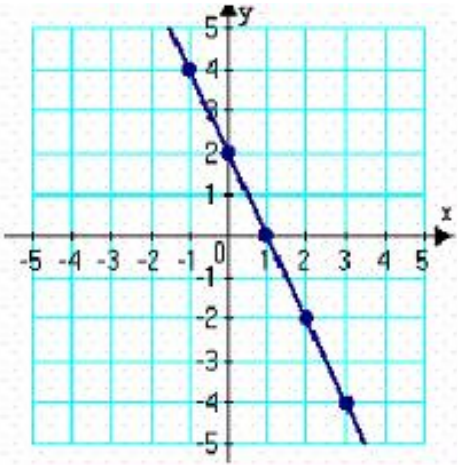
y
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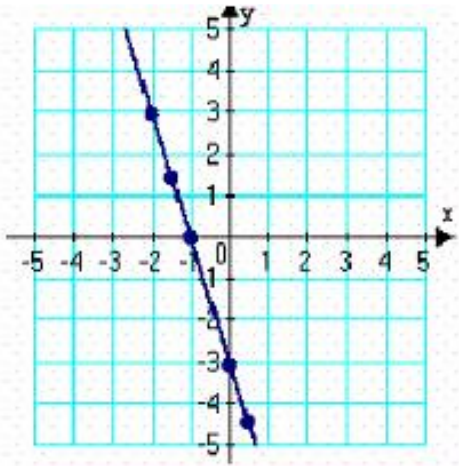
-5 -4 -3 -2 -1 1 2 3 4 5

D.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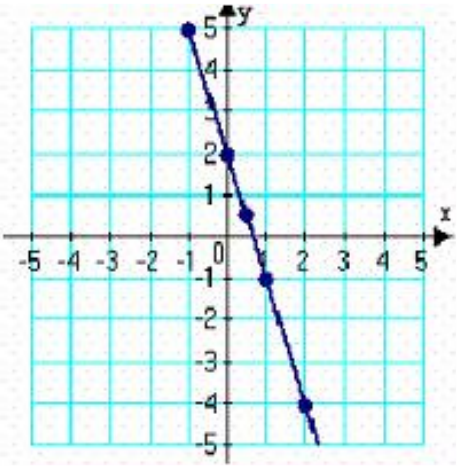
E.


y
x
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3
2
1
0
-1
-2
-3
-4
-5
-5 -4 -3 -2 -1 1 2 3 4 5

4. Find the *x*- and *y*-intercepts of the graph of the equation $y = |-5x - 4|$.

A. *x*-intercept: $\left(-\frac{5}{4}, 0\right)$
y-intercept: $(0, 4)$

B. *x*-intercept: $\left(-\frac{4}{5}, 0\right)$
y-intercept: $(0, -5)$

C. *x*-intercept: $\left(-\frac{4}{5}, 0\right)$
y-intercept: $(0, 4)$

D. *x*-intercept: $(4, 0)$
y-intercept: $(0, -5)$

E. *x*-intercept: $\left(-\frac{5}{4}, 0\right)$
y-intercept: none

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

A. *x*-intercept: $\left(-\frac{5}{6}, 0\right)$
y-intercept: $\left(0, \sqrt{5}\right)$

B. *x*-intercept: $\left(-\frac{5}{6}, 0\right)$
y-intercept: $\left(0, \pm\sqrt{5}\right)$

C. *x*-intercept: $\left(\frac{5}{6}, 0\right)$
y-intercept: $\left(0, \sqrt{5}\right)$

D. *x*-intercept: $\left(-\frac{5}{6}, 0\right)$
y-intercept: $\left(0, -\sqrt{5}\right)$

E. *x*-intercept: $\left(\frac{5}{6}, 0\right)$
y-intercept: $\left(0, \pm\sqrt{5}\right)$

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

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

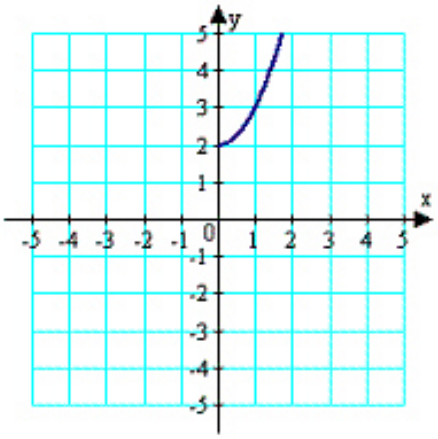
A. Symmetric with respect to the origin.
B. No symmetry.
C. Symmetric with respect to the *y*-axis.
D. Symmetric with respect to the *x*-axis.

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

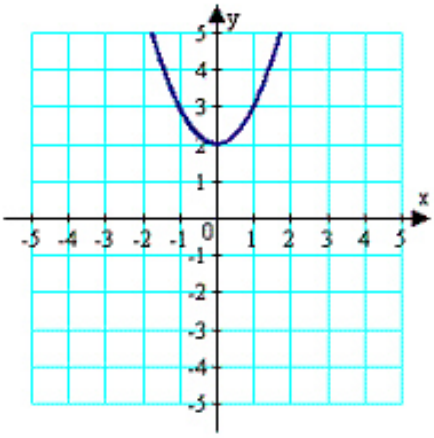
$y = 8x^4 - x^2 - 8$

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.

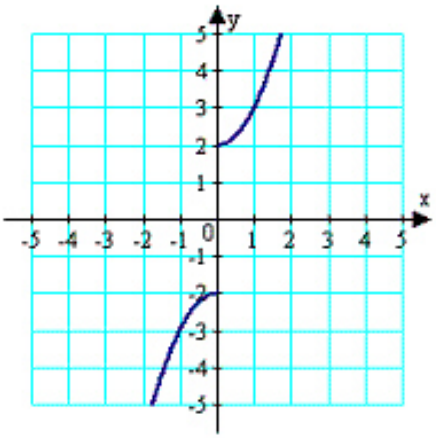
8. Assume the graph has the indicated type of symmetry. Sketch the complete graph.



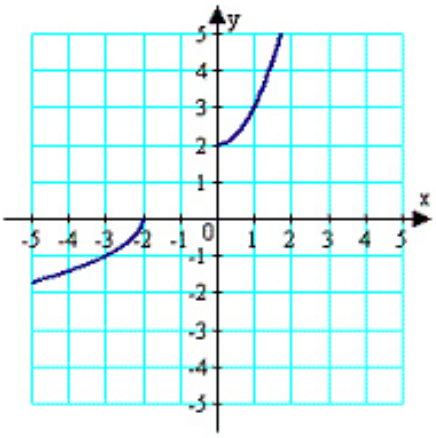
symmetric with respect to the origin



A.

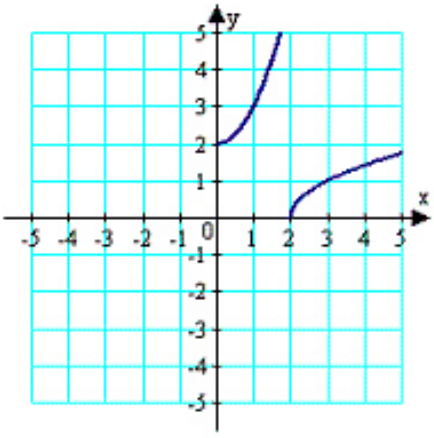


B.

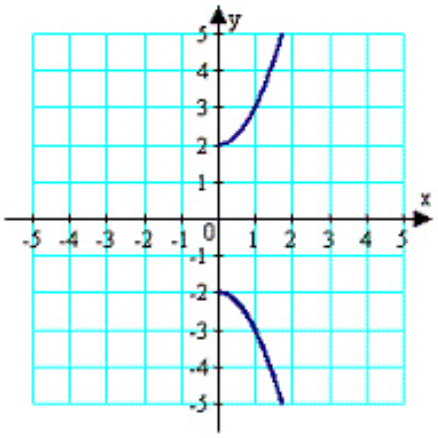


C.

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 $y = \sqrt{9x - 8}$.

A. *x*-intercept: $\left(\frac{9}{8}, 0\right)$
y-intercept: none

B. *x*-intercept: $\left(\frac{9}{8}, 0\right)$
y-intercept: $(0, 9)$

C. *x*-intercept: $\left(\frac{8}{9}, 0\right)$
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

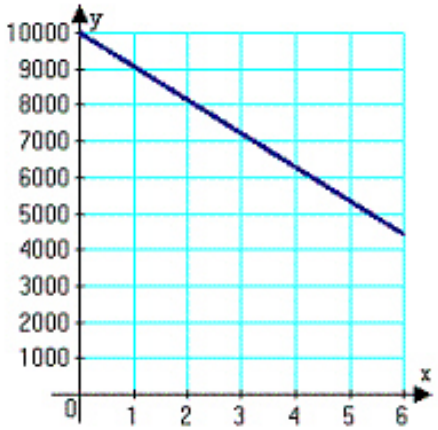
C. center: $(-4, -9)$, radius 7

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

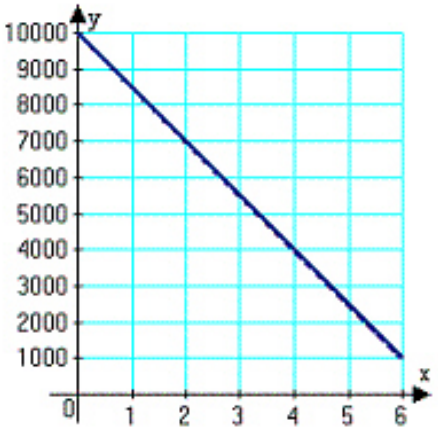
E. center: $(4, 9)$, radius 7

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 $0 \le x \le 6$.

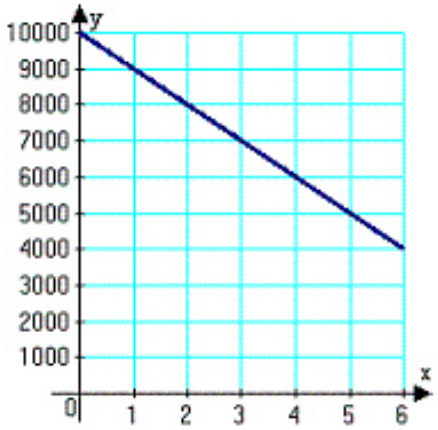
A.



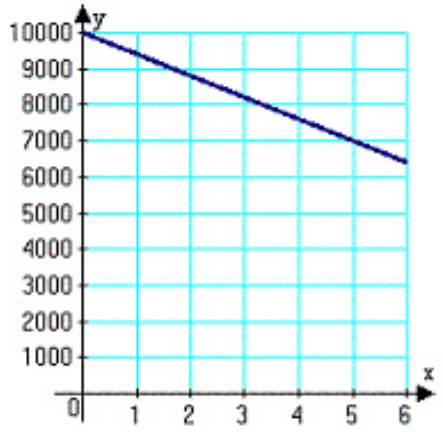
B.



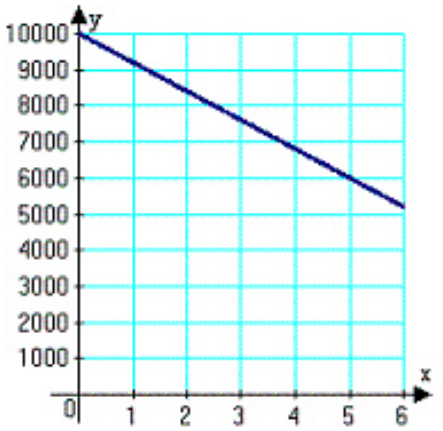
C.



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

18. Determine whether the equation $-6(x-1) = -6x + 12$ 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

19. Determine whether the equation $-4(x+2) + 4x = -4x + 2$ 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. $x=\frac{29}{7}$

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

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

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

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

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

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

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

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

A.

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

B.

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

C.

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

D.

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

E.

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

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

A.

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

B.

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

C.

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

D.

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

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.

$5\left(x^2 + 2\right) = 9x$

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

B. $5\left(x^2 + 2\right) - 9x = 0$

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. $x = -2, \quad x = 5$

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

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

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

E. $x = \frac{2}{5}, \quad x = 5$

E.

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

A. $x = \frac{25}{2}, \quad \frac{25}{2}$

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

C. $x = \frac{5}{4}, \quad -\frac{5}{4}$

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

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

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.

$64x^2 = 160x - 91$

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

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

C. $x = \frac{7}{8}, \quad \frac{13}{8}$

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

E. $x = 7, \quad 13$

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

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

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

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

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

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

E.

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

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

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

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

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

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

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

39. Use the Quadratic Formula to solve .

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

A.

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

B.

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

C.

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

D.

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

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. $x = -1.408, \quad x = -0.509$

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

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

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

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

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

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

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

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

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

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

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

$15x^2 = 10x$

A. $x = \frac{2}{3}, \quad x = 0$

B. $x = 10$

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

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

D.

E. $x = 10, \quad x = 15$

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

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

A. $x = \frac{9}{4}, \quad x = 0$

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

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

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

E. $x = \frac{9}{4}, \quad x = -\frac{9}{4}$

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. $x = -1, \quad x = -10$

B. $x = 1, \quad x = 10$

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

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. $x = 127, \quad x = -127$

B. no solution

C. $x = 127$

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

D.

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

54. Find all solutions to the following equation.

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

A. no solution

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

B.

C. $x = 1$

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

D.

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

E.