Lar_AT_8e_Ch01

Student: _____

$$y = 7x^2 - 3x + 2$$

1. Determine which point lies on the graph of the equation .

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

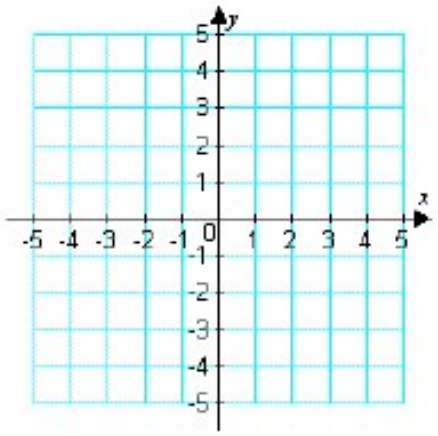
$$y = -5 - |x - 3|$$

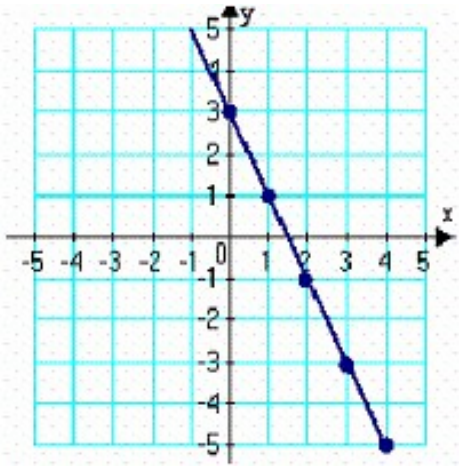
2. Determine which point does **not** lie on the graph of the equation .

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

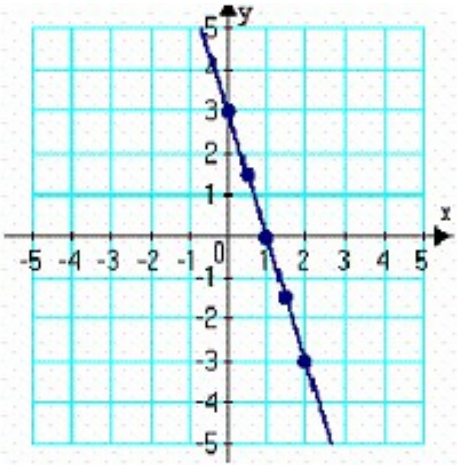
3. Create and complete a table to find the x and y coordinates of points that lie on the graph of the equation below. Plot at least 5 points along with the graph of the equation.

$y = -3x + 3$





A.



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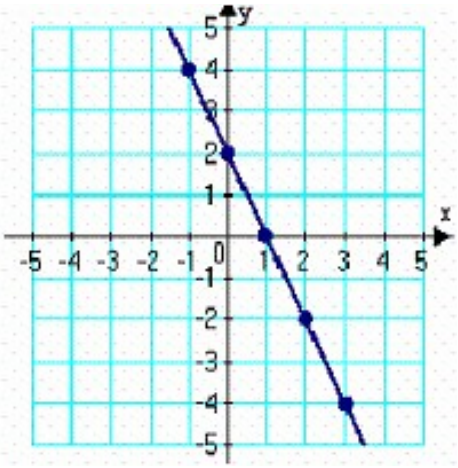
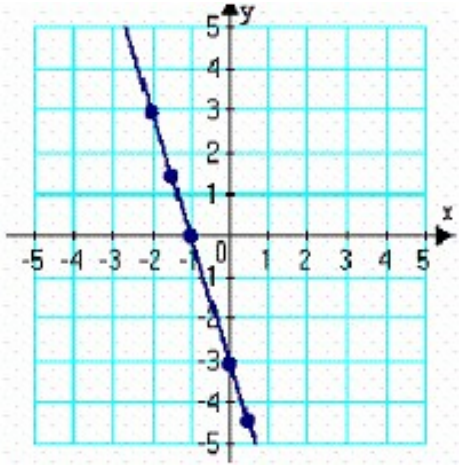
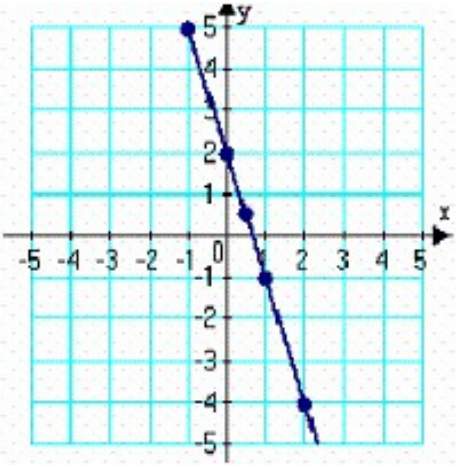

y
x
5
4
3
2
1
-5 -4 -3 -2 -1 0 1 2 3 4 5
-1
-2
-3
-4
-5

C.


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

D.


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

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

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

C. x-intercept:
$(0, 4)$
y-intercept:
$(4, 0)$

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

E. x-intercept:
y-intercept: none

$$y^2 = -6x + 5$$

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

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

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.

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

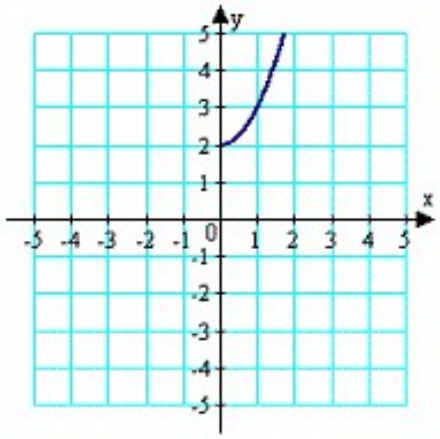
A. Symmetric with respect to the origin.
B. No symmetry.
C. Symmetric with respect to the y-axis.
D. Symmetric with respect to the x-axis.

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

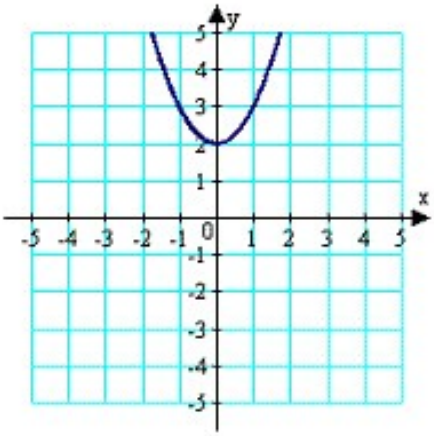
$y = 8x^4 - x^2 - 8$

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.

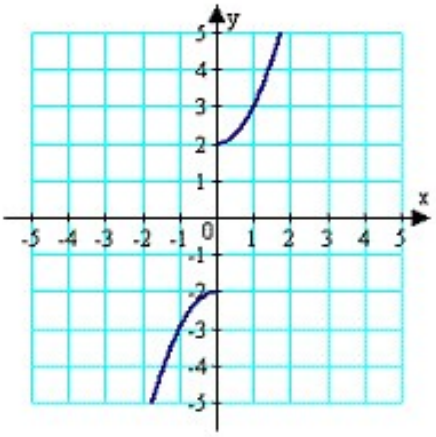
8. Assume the graph has the indicated type of symmetry. Sketch the complete graph.



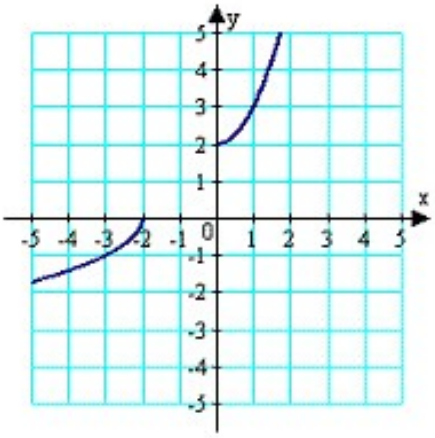
symmetric with respect to the origin



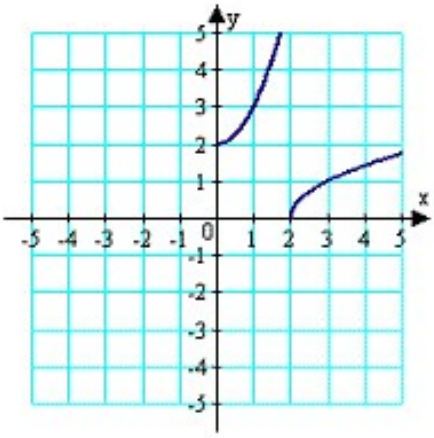
A.



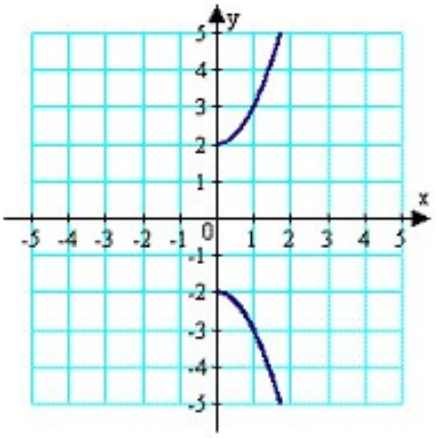
B.


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

C.


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

D.


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

E.

$$y = 49 - 7x$$

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

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)

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

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

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

A. x-intercept:
y-intercept: none

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

B. x-intercept:

$(0, 9)$

y-intercept:

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

C. x-intercept:
y-intercept: none

$(9, 0)$

D. x-intercept:

$(0, 8)$

y-intercept:

$(8, 0)$

E. x-intercept:
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.

$x^2+y^2=36$

14. Find the center and radius of the circle .

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

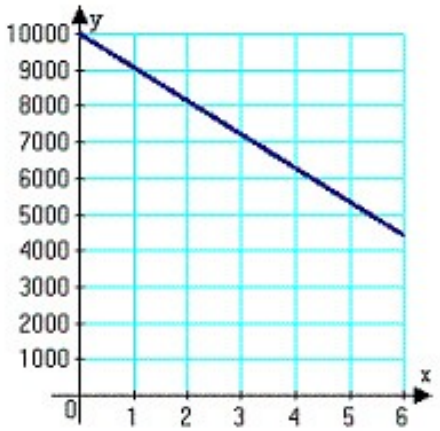
B. center: $(4,\ 9)$, radius 49

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

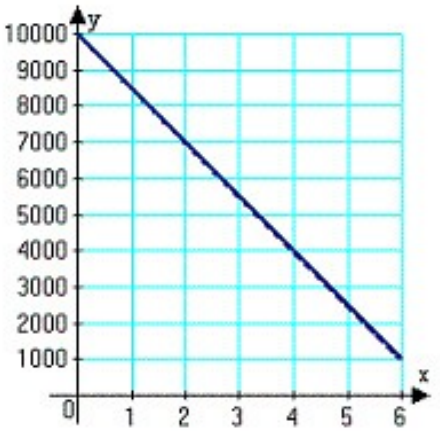
D. center: $(-4,\ -9)$, radius 49

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

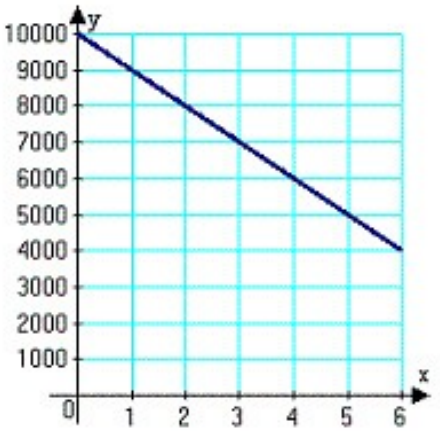
16. You purchase a jet ski for $10,000. The depreciated value, y, after x years is given by $y = 10,000 - 1,000x$ $0 \le x \le 6$. Sketch the graph of the equation given .



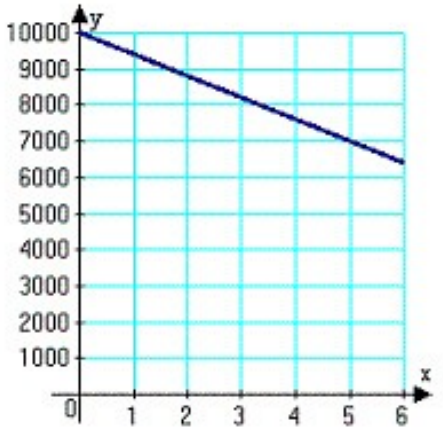
A.



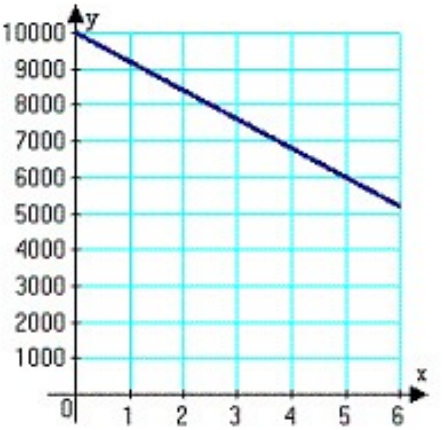
B.



C.



D.



E.

$$3(x-2)=3x-6$$

17. Determine whether the equation 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

B. conditional with $x = \frac{1}{2}$ satisfying the equation

C. identity

D. conditional with no solution

E. conditional with $x = -\frac{1}{2}$ 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.

A. conditional with $x = \frac{5}{2}$ satisfying the equation

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

C. conditional with $x = -\frac{3}{2}$ satisfying the equation

D. conditional with no solution

E. identity

$$8 - 5x = 6$$

20. Solve the equation .

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

A.

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

B.

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

C.

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

D.

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

E.

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

21. Solve the equation .

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

A.

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

B.

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

C.

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

D.

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

E.

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

22. Solve the equation .

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

A.

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

B.

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

C.

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

D.

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

E.

$$0.7x+0.3(3-x)=3$$

23. Solve the equation .

A. 6
B. 5.25
C. 21
D. 10.5
E. 2.625

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

24. Solve the equation .

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

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.

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

27. Solve the equation .

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

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.

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

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

A.

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

B.

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

C.

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

D.

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

E.

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.

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

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

A.

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

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.

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

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

A.

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

B.

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

C.

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

D.

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

E.

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

33. Solve the equation by extracting square roots.

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

A.

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

B.

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

C.

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

D.

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

E.

$$(x-3)^2 = (x+8)^2$$

34. Solve the equation by extracting square roots.

$x = 0$

A.

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

B.

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

C.

D. no solution

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

E.

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

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

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

A.

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

B.

$x = -2$

C.

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

D.

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

E.

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

$64x^2 = 160x - 91$

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

A.

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

B.

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

C.

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

D.

$x = 7, \quad 13$

E.

$$36x^2 - 48x + 14 = 0$$

37. Use the Quadratic Formula to solve .

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

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.

$$x^2 + 20x + 98 = 0$$

38. Use the Quadratic Formula to solve .

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

A.

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

B.

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

C.

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

D.

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

E.

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

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.

$$2.3x^2 - 0.1x - 0.9 = 0$$

40. Use the Quadratic Formula to solve the equation (Round your answer to three decimal places.)

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

A.

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

B.

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

C.

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

D.

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

E.

$$-350x^2 + 325x + 550 = 0$$

41. Use the Quadratic Formula to solve the equation (Round your answer to three decimal places.)

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

A.

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

B.

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

C.

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

D.

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

E.

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

$15x^2 = 10x$

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

A.

$x = 10$

B.

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

C.

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

D.

$x = 10, \quad x = 15$

E.

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

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

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

A.

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

B.

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

C.

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

D.

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

E.

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

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

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

A.

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

B.

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

C.

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

D.

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

E.

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

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

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

A.

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

B.

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

C.

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

D.

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

E.

$x^4 - 16 = 0$

46. Find all solutions to the equation .

$x = -2, 2$

A.

$x = 3$

B.

$x = -3, 3$

C.

$x = 2$

D.

$x = -2$

E.

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.

$$36x^4 - 145x^2 + 4 = 0$$

48. Find all solutions to the equation .

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

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.

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

$x = 194$

A.

$x = 12$

B.

$x = -12$

C.

$x = -194$

D.

$x = 198$

E.

50. Find all solutions to the following equation.

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

$x=26$

A.

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

B.

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

C.

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

D.

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

E.

51. Find all solutions to the following equation.

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

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

A.

$x=1, \quad x=10$

B.

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

C.

$x=-10$

D.

$x=-1$

E.

52. Find all solutions to the following equation.

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

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

A.

$x = 9$

B.

no solution

C.

$x = -17$

D.

$x = -8$

E.

53. Find all solutions to the following equation.

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

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

A.

B. no solution

$x = 127$

C.

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

D.

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

E.

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.

$$x=1$$

C.

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

D.

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

E.

Lar_AT_8e_Ch01 Key

$$y = 7x^2 - 3x + 2$$

1. Determine which point lies on the graph of the equation .

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

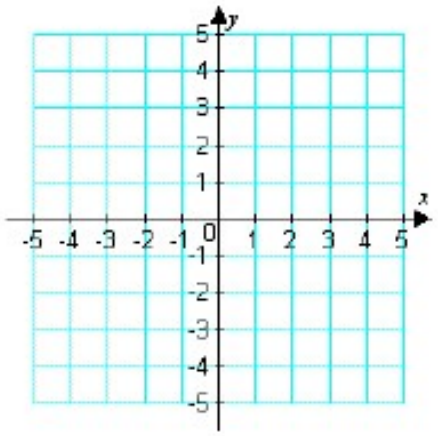
$$y = -5 - |x - 3|$$

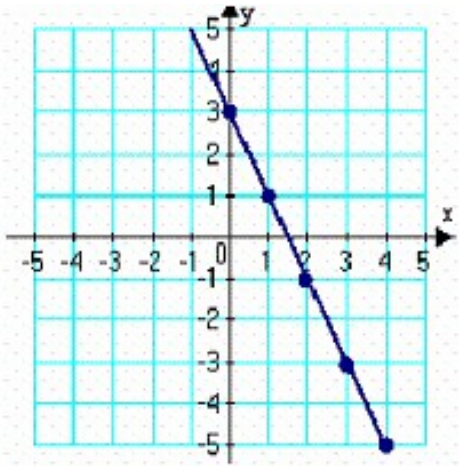
2. Determine which point does **not** lie on the graph of the equation .

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

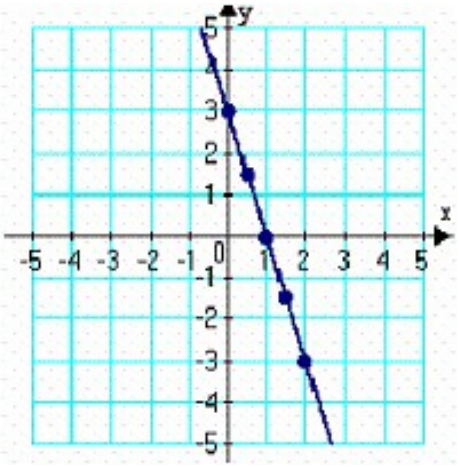
3. Create and complete a table to find the x and y coordinates of points that lie on the graph of the equation below. Plot at least 5 points along with the graph of the equation.

$y = -3x + 3$





A.



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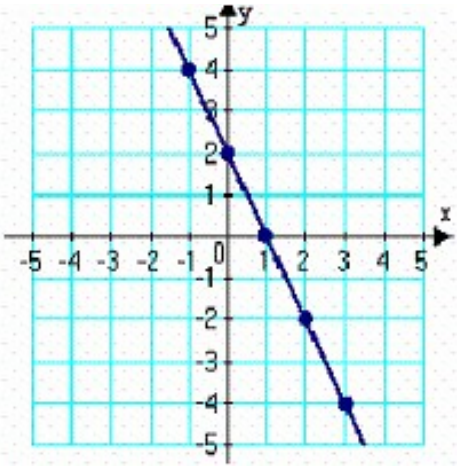
y
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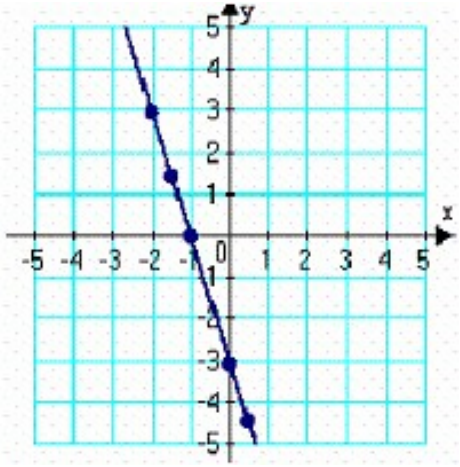
-1
-2
-3
-4
-5

C.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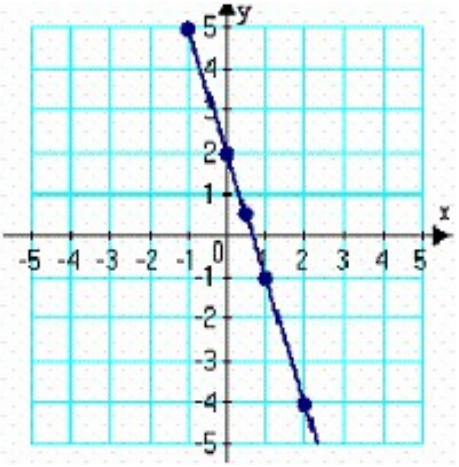
D.


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

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

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

C. x-intercept:
$(0, 4)$
y-intercept:
$(4, 0)$

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

E. x-intercept:
y-intercept: none

$$y^2 = -6x + 5$$

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

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

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.

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

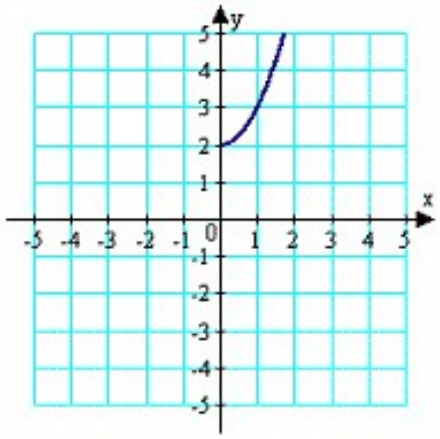
A. Symmetric with respect to the origin.
B. No symmetry.
C. Symmetric with respect to the y-axis.
D. Symmetric with respect to the x-axis.

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

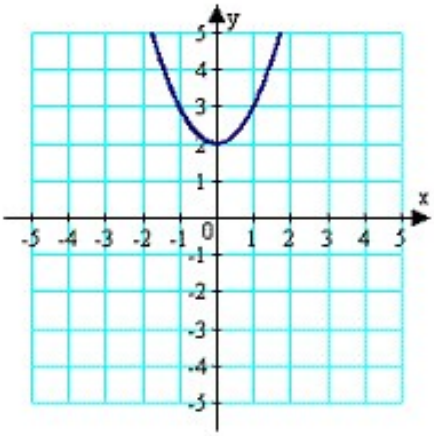
$y = 8x^4 - x^2 - 8$

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.

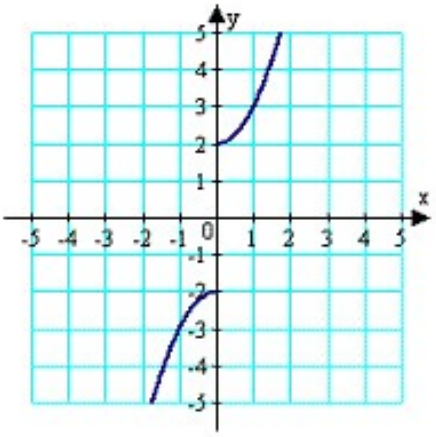
8. Assume the graph has the indicated type of symmetry. Sketch the complete graph.



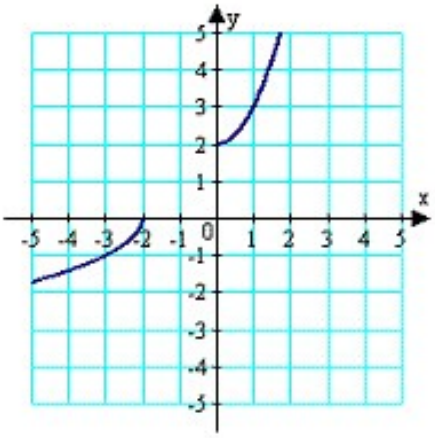
symmetric with respect to the origin



A.



B.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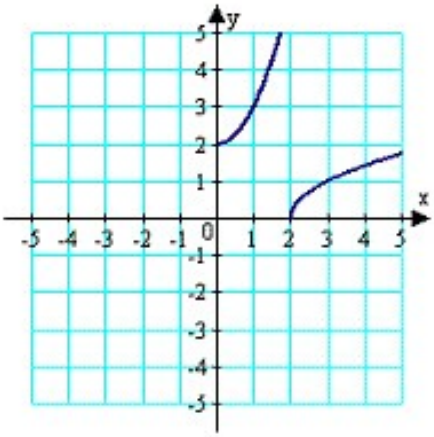
-2
-3
-4
-5

C.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-1
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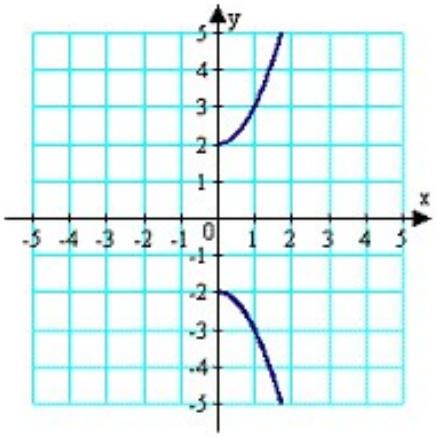
-4
-5

D.


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

E.

$$y = 49 - 7x$$

9. Find the *x*- and *y*-intercepts of the graph of the equation .

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)

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

10. Find the *x*- and *y*-intercepts of the graph of the equation .

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

A. *x*-intercept:
y-intercept: none

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

B. *x*-intercept:

$$(0, 9)$$

y-intercept:

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

C. *x*-intercept:
y-intercept: none

$$(9, 0)$$

D. *x*-intercept:

$$(0, 8)$$

y-intercept:

$$(8, 0)$$

E. *x*-intercept:
y-intercept: none

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

$(3, 1)$

center: ; 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.

$(-4, 4)$ $(-2, -6)$

center: ; solution point:

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

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.

$x^2+y^2=36$

14. Find the center and radius of the circle .

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

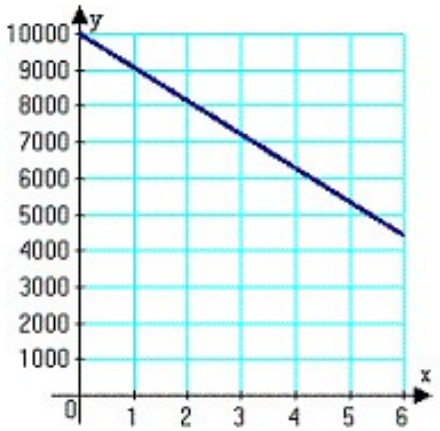
B. center: $(4,\ 9)$, radius 49

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

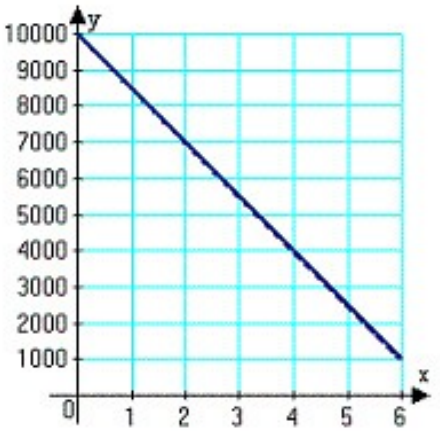
D. center: $(-4,\ -9)$, radius 49

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

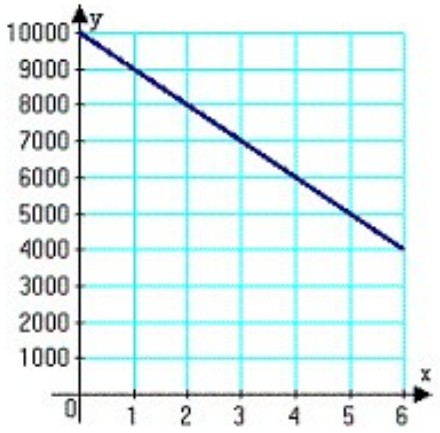
16. You purchase a jet ski for $10,000. The depreciated value, y, after x years is given by $y = 10,000 - 1,000x$ $0 \le x \le 6$. Sketch the graph of the equation given .



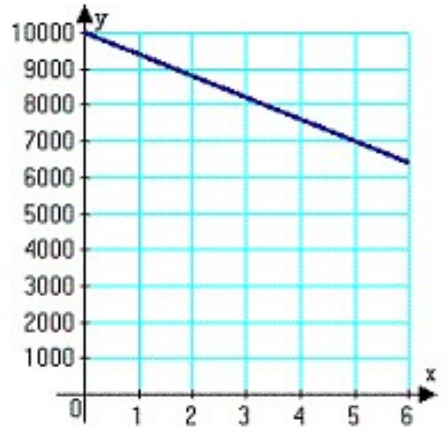
A.



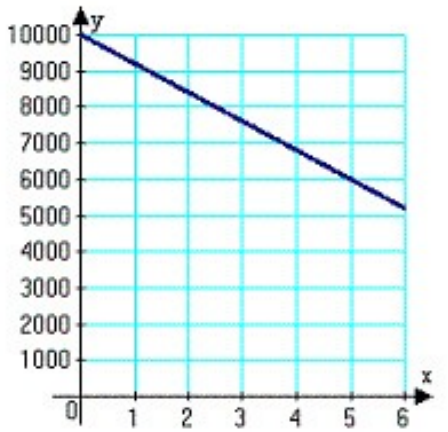
B.



C.



D.



E.

$$3(x-2)=3x-6$$

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

$x=2$

A. conditional with satisfying the equation

$x=0$

B. conditional with satisfying the equation

C. identity

$x=-2$

D. conditional with 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

B. conditional with $x = \frac{1}{2}$ satisfying the equation

C. identity

D. conditional with no solution

E. conditional with $x = -\frac{1}{2}$ 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.

A. conditional with $x = \frac{5}{2}$ satisfying the equation

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

C. conditional with $x = -\frac{3}{2}$ 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.

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

21. Solve the equation .

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

A.

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

B.

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

C.

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

D.

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

E.

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

22. Solve the equation .

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

A.

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

B.

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

C.

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

D.

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

E.

$$0.7x+0.3(3-x)=3$$

23. Solve the equation .

A. 6
B. 5.25
C. 21
D. 10.5
E. 2.625

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

24. Solve the equation .

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

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.

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

27. Solve the equation .

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

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.

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

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

A.

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

B.

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

C.

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

D.

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

E.

29. Write the following quadratic equation in standard form.

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

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

A.

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

B.

$5x^2+10=9x$

C.

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

D.

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

E.

30. Write the following quadratic equation in standard form.

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

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

A.

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

B.

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

C.

$x^2-4x=-9$

D.

$x^2-3x=-9$

E.

31. Solve the following quadratic equation by factoring.

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

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

A.

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

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.

$4x^2 = 25$

32. Solve the equation by extracting square roots.

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

A.

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

B.

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

C.

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

D.

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

E.

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

33. Solve the equation by extracting square roots.

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

A.

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

B.

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

C.

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

D.

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

E.

$$(x-3)^2 = (x+8)^2$$

34. Solve the equation by extracting square roots.

$x = 0$

A.

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

B.

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

C.

D. no solution

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

E.

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

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

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

A.

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

B.

$x = -2$

C.

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

D.

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

E.

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

$64x^2 = 160x - 91$

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

A.

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

B.

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

C.

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

D.

$x = 7, \quad 13$

E.

$$36x^2 - 48x + 14 = 0$$

37. Use the Quadratic Formula to solve .

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

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.

$$x^2 + 20x + 98 = 0$$

38. Use the Quadratic Formula to solve .

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

A.

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

B.

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

C.

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

D.

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

E.

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

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.

$$2.3x^2 - 0.1x - 0.9 = 0$$

40. Use the Quadratic Formula to solve the equation (Round your answer to three decimal places.)

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

A.

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

B.

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

C.

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

D.

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

E.

$$-350x^2 + 325x + 550 = 0$$

41. Use the Quadratic Formula to solve the equation (Round your answer to three decimal places.)

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

A.

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

B.

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

C.

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

D.

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

E.

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

$15x^2 = 10x$

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

A.

$x = 10$

B.

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

C.

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

D.

$x = 10, \quad x = 15$

E.

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

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

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

A.

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

B.

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

C.

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

D.

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

E.

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

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

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

A.

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

B.

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

C.

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

D.

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

E.

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

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

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

A.

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

B.

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

C.

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

D.

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

E.

$x^4 - 16 = 0$

46. Find all solutions to the equation .

$x = -2, 2$

A.

$x = 3$

B.

$x = -3, 3$

C.

$x = 2$

D.

$x = -2$

E.

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.

$$36x^4 - 145x^2 + 4 = 0$$

48. Find all solutions to the equation .

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

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.

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

$x = 194$

A.

$x = 12$

B.

$x = -12$

C.

$x = -194$

D.

$x = 198$

E.

50. Find all solutions to the following equation.

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

$x=26$

A.

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

B.

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

C.

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

D.

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

E.

51. Find all solutions to the following equation.

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

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

A.

$x=1, \quad x=10$

B.

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

C.

$x=-10$

D.

$x=-1$

E.

52. Find all solutions to the following equation.

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

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

A.

$x = 9$

B.

no solution

C.

$x = -17$

D.

$x = -8$

E.

53. Find all solutions to the following equation.

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

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

A.

B. no solution

$x = 127$

C.

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

D.

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

E.

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.

$$x=1$$

C.

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

D.

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

E.