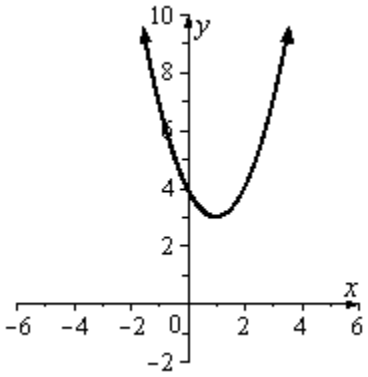
1. Using the table, determine $f(-5)$.

x	$f(x) = x^2 + 3x + 2$
–4	6
–3	2
–2	0
–1	0
0	2
1	6
2	12
3	20
4	30

A) 42
B) 6
C) 20
D) 1
E) 12

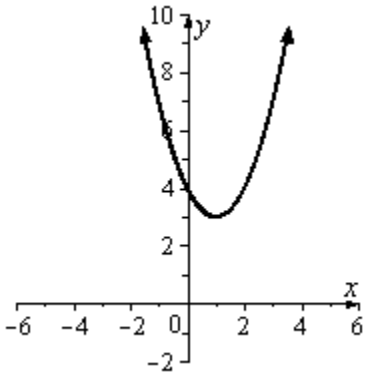
2. Find the x-intercepts of the parabola: $y = 4x^2 - 36$
A) (3,0), (–2,0)
B) (3,0)
C) (0,–3), (0,3)
D) (–3,0), (3,0)
E) (0,–3), (–3,0)

3. Using the graph, find the *y*-intercept point.



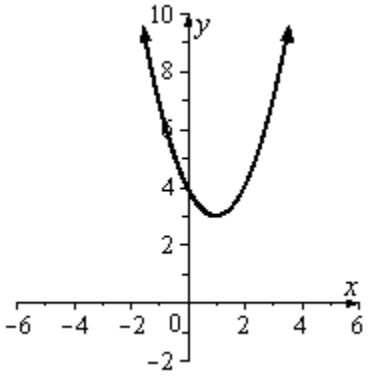
A) (4, 0)
B) (0, 4)
C) (3, 1)
D) (1, 3)
E) no *y*-intercept

4. Using the graph, find the equation for the axis of symmetry.



A) $y = 3$
B) $y = 4$
C) $x = 1$
D) $x = 4$
E) $x = 0$

5. Using the graph, find the vertex.



A) (1, 4)
B) (4, 0)
C) (0, 4)
D) (3, 1)
E) (1, 3)

6. Find the minimum or maximum of the quadratic function:

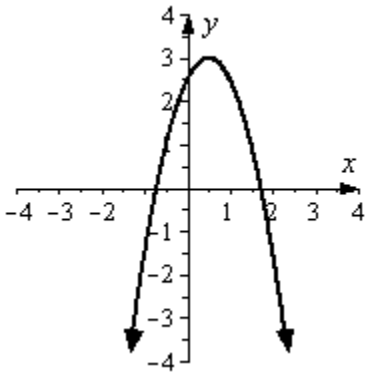
$y = x^2 - 10x + 10$

A) Minimum: –15
B) Minimum: 35
C) Minimum: 5
D) Minimum: 15
E) Maximum: –17

7. Find the *x*-intercepts of the parabola: $y = 4x^2 - 64$

A) (4,0), (–3,0)
B) (4,0)
C) (0,–4), (0,4)
D) (–4,0), (4,0)
E) (0,–4), (–4,0)

8. Using the graph, find the equation for the axis of symmetry.



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

B) $x = 1$

C) $y = 3$

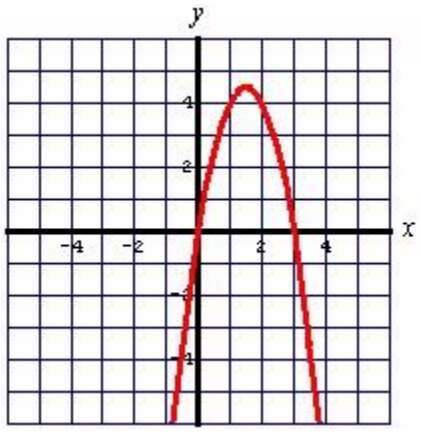
D) $y = 1$

E) $y = \frac{1}{2}$

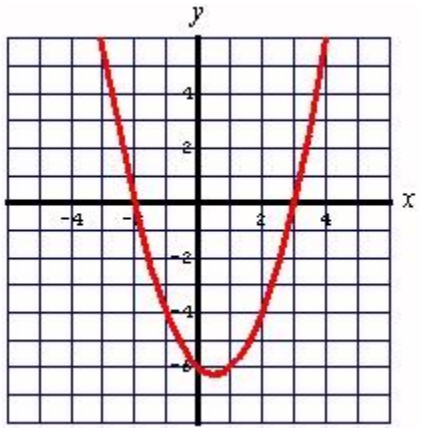
9. Find the vertex and axis of symmetry, and then graph the parabola given by:

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

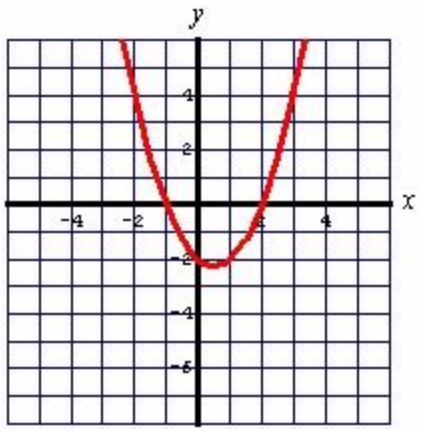
A) Vertex: $(\frac{3}{2}, \frac{9}{2})$; Axis of symmetry: $x = \frac{3}{2}$



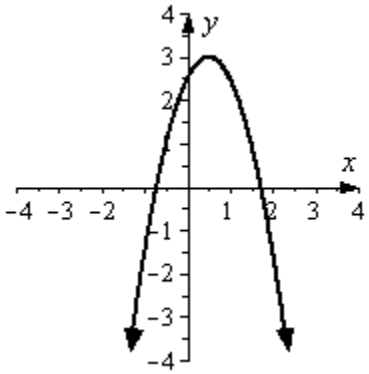
B) Vertex: $(\frac{1}{2}, \frac{-25}{4})$; Axis of symmetry: $x = \frac{1}{2}$



C) Vertex: $(\frac{3}{2}, \frac{-9}{4})$; Axis of symmetry: $x = \frac{1}{2}$



10. Using the graph, find the vertex.



A) $\left(3,\ \frac{1}{2}\right)$

B) $\left(\frac{1}{2},\ 3\right)$

C) $\left(0,\ 2\frac{1}{2}\right)$

D) $\left(2\frac{1}{2},\ 0\right)$

E) $(1,\ 3)$

11. Find the minimum or maximum of the quadratic function:

$y = 4x^2 + 8x$

A) Minimum: –4
B) Minimum: –1
C) Minimum: 12
D) Minimum: 4
E) Minimum: –3

12. Find the *x*-intercepts of the parabola: $y = x^2 - 2x - 15$

A) (3,0), (5,0)
B) (3, 5)
C) (0,–3), (5, 0)
D) (–3,0), (5, 0)
E) (0,–3), (0,5)

13. Using a table and graph, find the equation for the axis of symmetry.

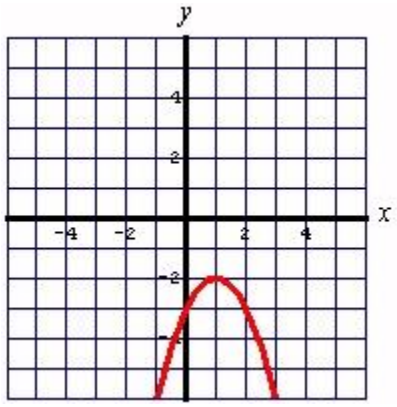
$f(x) = -x^2 - 6x - 4$

A) $y = -3$
B) $y = 5$
C) $y = -4$
D) $x = -3$
E) $x = 5$

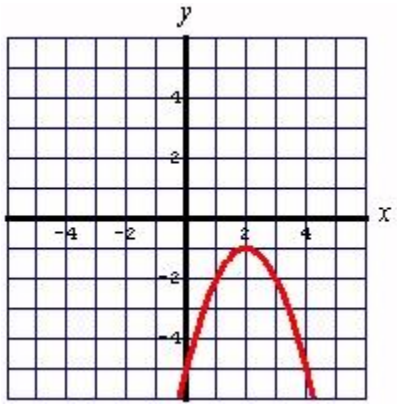
14. Find the vertex and axis of symmetry, and then graph the parabola given by:

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

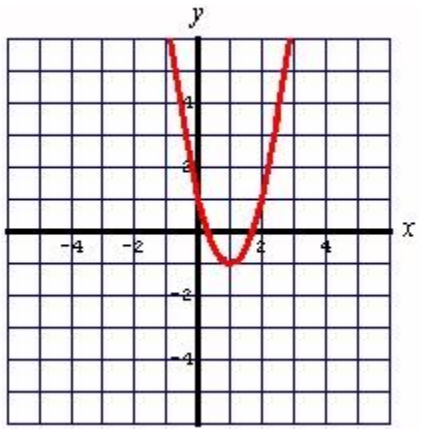
A) Vertex: (1, –2); Axis of symmetry: $x = 1$



B) Vertex: (2, –1); Axis of symmetry: $x = 2$



C) Vertex: (1, –1); Axis of symmetry: $x = 1$



15. Find the vertex of the following equation.

$f(x) = -x^2 + 4x - 10$

A) $(0, -10)$

B) $(-10, 0)$

C) $(2, -6)$

D) $(-6, 2)$

E) $(-6, -10)$

16. Find the minimum or maximum of the quadratic function:

$y = -9x^2 + 6x - 8$

A) Maximum: –7

B) Maximum: 2

C) Maximum: 9

D) Maximum: –9

E) Minimum: 3

17. Find the *x*-intercepts of the parabola: $y = 8x^2 + 13x - 6$

A) (2,0), $\left(\frac{3}{8}, 0\right)$

B) $\left(2, \frac{3}{8}\right)$

C) (0,–2), $\left(\frac{3}{8}, 0\right)$

D) (–2,0), $\left(\frac{3}{8}, 0\right)$

E) (0,–2), $\left(0, \frac{3}{8}\right)$

18. The vertex of a parabola is (–7, –1) and opens upward. What is the equation of the axis of symmetry of the parabola?

A) $y = -1$

B) $x = 7$

C) $x = -7$

D) $y = 1$

E) $x = -1$

19. Find the minimum or maximum of the quadratic function:

$y = -5x^2 + 10x - 1$

A) Maximum: 4
B) Maximum: 1
C) Maximum: 6
D) Maximum: –4
E) Minimum: –5

20. **Physics:** The height, *s*, in feet, of a rock thrown upward at an initial speed of 76 ft/s from a cliff 40 ft above the ocean beach is given by the function $s(t) = -16t^2 + 76t + 40$, where *t* is the time in seconds.

Find the maximum height above the beach that the rock will attain.

A) 130.25 ft
B) 2.4 ft
C) 130 ft
D) 139.25 ft
E) 122.25 ft

21. Use first and second differences to find out whether each sequence may be described with a linear function, a quadratic function, or neither. Use the table method to fit a linear or quadratic equation.

$1,\ 8,\ 11,\ 37,\ 640, \ldots$

A) linear; $y = 2x + 1$
B) quadratic; $y = 2x^2$
C) quadratic; $y = 2x^2 + 1$
D) linear; $y = 2x$
E) neither

22. Use first and second differences to find out whether each sequence may be described with a linear function, a quadratic function, or neither. Use the table method to fit a linear or quadratic equation.

$8,\ 24,\ 48,\ 80,\ 120, \ldots$

A) linear; $y = 4x$

B) quadratic; $y = 4x^2 + x$

C) quadratic; $y = 4x^2 + 4x$

D) linear; $y = 16x^2$

E) neither

23. Use first and second differences to find out whether each sequence may be described with a linear function, a quadratic function, or neither. Use the table method to fit a linear or quadratic equation.

$8,\ 15,\ 22,\ 29,\ 36, \ldots$

A) linear; $y = 7x$

B) quadratic; $y = 7x^2 + 1$

C) linear; $y = 7x + 1$

D) quadratic; $y = 7x^2 - 1$

E) neither

24. Use first and second differences to find out whether each sequence may be described with a linear function, a quadratic function, or neither. Use the table method to fit a linear or quadratic equation.

$5,\ 12,\ 21,\ 32,\ 45, \ldots$

A) linear; $y = 4x$

B) quadratic; $y = x^2 + 4x$

C) linear; $y = x$

D) quadratic; $y = x^2 + x$

E) neither

25. Use first and second differences to find out whether each sequence may be described with a linear function, a quadratic function, or neither. Use the table method to fit a linear or quadratic equation.

$35,\ 42,\ 47,\ 50,\ 51, \ldots$

A) quadratic; $y = -x^2 + 10x + 26$
B) linear; $y = 10x + 26$
C) linear; $y = -10x + 26$
D) quadratic; $y = x^2 + 10x + 26$
E) neither

26. Use first and second differences to find out whether each sequence may be described with a linear function, a quadratic function, or neither. Use the table method to fit a linear or quadratic equation.

$2,\ 2, 3,\ 4,\ 6,\ 9, \ldots$

A) quadratic; $y = 2x$
B) linear; $y = 2x$
C) linear; $y = 4x$
D) quadratic; $y = 3x$
E) neither

27. Use first and second differences to find out whether each sequence may be described with a linear function, a quadratic function, or neither. Use the table method to fit a linear or quadratic equation.

$21,\ 25,\ 29,\ 33,\ 37, \ldots$

A) quadratic; $y = 4x^2 + 17$
B) linear; $y = 4x + 2$
C) linear; $y = 4x + 17$
D) quadratic; $y = 4x^2 + 2$
E) neither

28. Use first and second differences to find out whether each sequence may be described with a linear function, a quadratic function, or neither. Use the table method to fit a linear or quadratic equation.

$6, 13, 27, 34, 37, \ldots$

A) linear; $y = 6x$
B) quadratic; $y = 7x$
C) linear; $y = 8x$
D) quadratic; $y = 6x$
E) neither

29. Add the following. Use a vertical format.

$(3x^2 + 3x + 2) + (4x^2 + 5x - 8)$

A) $7x^2 + 2x - 6$
B) $7x^2 + 8x + 6$
C) $7x + 8x^2 - 6$
D) $7x^2 + 8x - 6$
E) $7x^2 + 8x - 2$

30. Add the following. Use a vertical format.

$(5r^3 - 10r^2 + 11r) + (-14 - 5r + 3r^2)$

A) $5r^3 + 7r^2 + 6r - 14$
B) $5r^3 - 7r^2 + 6r + 14$
C) $5r^3 - 7r^2 + 6r - 14$
D) $5r^3 + 7r^2 - 6r - 14$
E) $5r^3 - 7r^2 + 6r - 3$

31. Add the following. Use a horizontal format.

$(-10x^2 + 3x + 4) + (3x^2 + 4x - 11)$

A) $-7x^2 - x - 7$
B) $-7x^2 + 7x + 7$
C) $-7x + 7x^2 - 7$
D) $-7x^2 + 7x - 7$
E) $-7x^2 - x + 15$

32. Add the following. Use a horizontal format.

$$\left(5y^3-5y^2+7y\right)+\left(-11-2y+2y^2\right)$$

A) $7y^3+3y^2+5y-11$

B) $5y^3-3y^2+5y+11$

C) $5y^3-3y^2+5y-11$

D) $5y^3-3y^2-5y-11$

E) $7y^3-7y^2+5y-4$

33. Subtract the following. Use a vertical format.

$$\left(3x^2+11x+4\right)-\left(5x^2-6x+7\right)$$

A) $-2x^2+11x-3$

B) $-2x^2+17x+3$

C) $-2x+17x^2+3$

D) $-2x^2+5x-3$

E) $-2x^2+17x-3$

34. Subtract the following. Use a vertical format.

$$\left(5y^2-8y+5\right)-\left(-10+2y-2y^3\right)$$

A) $2y^3+5y^2+10y-15$

B) $-2y^3-5y^2+10y+15$

C) $2y^3+5y^2-10y+15$

D) $2y^3-5y^2-10y-15$

E) $-2y^3+3y^2+6y-5$

35. Subtract the following. Use a vertical format.

$$\left(10x^2+10x-4\right)-\left(4x+14x^2-10\right)$$

A) $-4x^2+6x+6$

B) $-4x^2+24x-6$

C) $-4x+6x^2-6$

D) $-4x^2-6x+6$

E) $-4x^2+6x-6$

36. Subtract the following. Use a horizontal format.

$$\left(2x^3+7x+8\right)-\left(-12x^2+2x-2\right)$$

A) $2x^3-12x^2-5x+10$
B) $2x^3-12x^2+5x+10$
C) $2x^3+12x^2+5x+10$
D) $2x^3-12x^2-5x-10$
E) $14x^3+5x-6$

37. Given $P(x)=x^2-3xy+y^2$ and $R(x)=6x^2-6y^2$, find $P(x)+R(x)$.

A) $6x^2-3xy-3y^2$
B) $7x^2-3xy-3y^2$
C) $7x^2-2xy-3y^2$
D) $6x^2-2xy-2y^2$
E) $7x^2-3xy-5y^2$

38. Given $P(x)=7x^2+6y^2$ and $R(x)=-13x^2+6xy-7y^2$, find $P(x)-R(x)$.

A) $-6x^2-6xy+13y^2$
B) $20x^2-6xy+12y^2$
C) $-6x^2-6xy+12y^2$
D) $20x^2-6xy+13y^2$
E) $-6x^2-7xy+12y^2$

39. Multiply:

$$\left(x^2-7x+4\right)\left(x-2\right)$$

A) $x^3-9x^2+18x-8$
B) $x^3-9x^2+18x+8$
C) $x^3-9x^2-18x-8$
D) $x^3+9x^2+18x-8$
E) $x^3+9x^2-18x-8$

40. Multiply:

$$\left(x^2-4x+5\right)\left(5x-3\right)$$

A) $5x^3-23x^2+37x-15$
B) $5x^3-23x^2+37x+15$
C) $5x^3-23x^2-37x-15$
D) $5x^3+23x^2+37x-15$
E) $5x^3+23x^2-37x-15$

41. Multiply:

$$\left(-7x^2+7x-2\right)\left(2x-3\right)$$

A) $-14x^3-35x^2-25x+6$
B) $-14x^3+35x^2-25x-6$
C) $-14x^3+35x^2-25x+6$
D) $-14x^3-35x^2+25x+6$
E) $-14x^3+35x^2+25x-6$

42. Multiply:

$$\left(7y^3+4y^2+5\right)\left(5y-1\right)$$

A) $35y^4-13y^3+4y^2+25y-5$
B) $35y^4+13y^3-4y^2+25y-5$
C) $35y^4+13y^3+4y^2+25y-5$
D) $35y^4-13y^3-4y^2+25y-5$
E) $35y^4+13y^3+4y^2-25y-5$

43. Multiply:

$$\left(y^3+2y^2-2y+1\right)\left(y+4\right)$$

A) $y^4+6y^3+6y^2+7y+4$
B) $y^4-6y^3+6y^2-7y+4$
C) $y^4-6y^3+6y^2+7y+4$
D) $y^4+6y^3+6y^2-7y+4$
E) $y^4+6y^3-6y^2-7y-4$

44. Multiply:

$(x+7)(x+2)$

A) $x^2+9x+14$
B) $x^2+9x-14$
C) x^2+14
D) $x^2-9x+14$
E) $x^2+5x+14$

45. Multiply:

$(x-2)(x+5)$

A) $x^2-3x-10$
B) $x^2+3x+10$
C) x^2-10
D) $x^2+3x-10$
E) $x^2-2x-10$

46. Multiply:

$(x-4)(x-3)$

A) $x^2-7x+12$
B) $x^2+12x+12$
C) x^2+12
D) $x^2-7x-12$
E) $x^2-4x-12$

47. Multiply:

$(y+7)(3y+1)$

A) $3y^2+21y+7$
B) $3y^2+7$
C) $3y^2+22y-7$
D) $3y^2+22y+7$
E) $3y^2-22y+7$

48. Multiply:

$(5a-2)(a+3)$

A) $5a^2-13a+6$
B) $5a^2+13a+6$
C) $5a^2-2a-6$
D) $5a^2-13a-6$
E) $5a^2+13a-6$

49. Multiply:

$(4y-2)(y-3)$

A) $4y^2+14y+6$
B) $4y^2-14y+6$
C) $4y^2-2y-6$
D) $4y^2+14y-6$
E) $4y^2-14y-6$

50. Multiply:

$(7y-3)(3y-3)$

A) $21y^2-9y+9$
B) $21y^2-30y+9$
C) $21y^2+30y+9$
D) $21y^2-30y-9$
E) $21y^2-9y-9$

51. Multiply:

$(2a+2b)(a-6b)$

A) $2a^2+10ab-12b^2$
B) $2a^2-10ab+12b^2$
C) $2a^2+2ab-12b^2$
D) $2a^2-10ab-12b^2$
E) $2a^2-12ab-12b^2$

52. Multiply:

$3(3x-2y)(3x+5y)$

A) $27x^2+27xy-30y^2$

B) $9x^2+9xy+10y^2$

C) $27x^2-27xy+30y^2$

D) $27x^2-27xy-30y^2$

E) $9x^2-9xy+10y^2$

53. Multiply:

$(xy+9)(xy-4)$

A) $x^2y^2+5xy-36$

B) $x^2y^2+9xy+36$

C) $x^2y^2-4xy+36$

D) $x^2y^2-5xy-36$

E) x^2y^2-36

54. Multiply:

$\left(4x^2-4y\right)\left(2x^2-y\right)$

A) $8x^4-8x^2y+4y^2$

B) $8x^4-12x^2y+4y^2$

C) $8x^4-4x^2y+4y^2$

D) $8x^4+12x^2y-4y^2$

E) $8x^4+4y^2$

55. Multiply:

$\left(x^2+5x-2\right)\left(x^2-7x+9\right)$

A) $x^4-2x^3-28x^2-59x-18$

B) $x^4-2x^3-28x^2+59x+18$

C) $x^4-2x^3-28x^2-59x+18$

D) $x^4-2x^3-28x^2+59x-18$

E) $x^4+2x^3-28x^2+59x-18$

56. Multiply:

$(a-4)(4a-2)(a+8)$

A) $4a^3+14a^2-136a-64$
B) $4a^3+14a^2-136a+64$
C) $4a^3+14a^2+136a-64$
D) $4a^3+14a^2+136a+64$
E) $4a^3-14a^2-136a-64$

57. Identify answers that are perfect square trinomials or differences of squares.

$(6x+3)(4x+3)$

A) $6x^2+18x+9$
B) $24x^2+30x+9$
C) $24x^2-30x+9$
D) $24x^2+30x-9$
E) $24x^2+9x-30$

58. Identify answers that are perfect square trinomials or differences of squares.

$(a-7b)(2a+5b)$

A) $2a^2+9ab-35b^2$
B) $2a^2-9ab+35b^2$
C) $2a^2-14ab-35ab^2$
D) $2a^2-9ab-35b^2$
E) $2a^2+5ab-35b^2$

59. Identify answers that are perfect square trinomials or differences of squares.

$(2a+4b)(a-3b)$

A) $2a^2+2ab-12b^2$
B) $2a^2-2ab+12b^2$
C) $2a^2+4ab-12b^2$
D) $2a^2-2ab-12b^2$
E) $2a^2-6ab-12b^2$

60. Factor:

$a^2 + 4a + 4$

A) $(a+2)(a-2)$

B) $(a-2)^2$

C) $(a+2)^2$

D) $(2+a)(2-a)$

E) Nonfactorable

61. Factor:

$a^2 - 10a + 25$

A) $(a+5)(a-5)$

B) $(a-5)^2$

C) $(a+5)^2$

D) $(5+a)(5-a)$

E) Nonfactorable

62. Factor:

$x^2 - 6x - 9$

A) $(x+3)(x-3)$

B) $(x-3)^2$

C) $(x+3)^2$

D) $(3+x)(3-x)$

E) Nonfactorable

63. Factor:

$x^2 + 8xy + 16y^2$

A) $(x+4y)(x-4y)$

B) $(x-4y)^2$

C) $(x+4y)^2$

D) $(4y+x)(4y-x)$

E) Nonfactorable

64. Factor:

$a^2 - 25$

A) $(a+5)(a-5)$

B) $(a-5)^2$

C) $(a+5)^2$

D) $(5+a)(5-a)$

E) Nonfactorable

65. Factor:

$25c^2 - 9$

A) $(3+5c)(3-5c)$

B) $(5c-3)^2$

C) $(5c+3)^2$

D) $(5c+3)(5c-3)$

E) Nonfactorable

66. Factor:

$b^{12} - 4$

A) $(b^6+2)(b^6-2)$

B) $(b^6-2)^2$

C) $(b^6+2)^2$

D) $(2+b^6)(2-b^6)$

E) Nonfactorable

67. Factor:

$25x^2 - 9y^2$

A) $(3y+5x)(3y-5x)$

B) $(5x-3y)^2$

C) $(5x+3y)^2$

D) $(5x+3y)(5x-3y)$

E) Nonfactorable

68. Factor:

$36b^2c^2 - 49$

A) $(7+6bc)(7-6bc)$

B) $(6bc-7)^2$

C) $(6bc+7)^2$

D) $(6bc+7)(6bc-7)$

E) Nonfactorable

69. Multiply:

$(9x^2-3)(x^2-3)$

A) $9x^4-27x^2-9$

B) $9x^4-30x^2+9$

C) $9x^4-3x^2-9$

D) $9x^4+30x^2+9$

E) $9x^4+9$

70. Multiply:

$(8x^2-8y)(2x^2-y)$

A) $16x^4-16x^2y+8y^2$

B) $16x^4-24x^2y+8y^2$

C) $16x^4-8x^2y+8y^2$

D) $16x^4+24x^2y-8y^2$

E) $16x^4+8y^2$

71. Factor the following expression:

x^3-512

A) $(x+8)(x^2-8x+64)$

B) $(x-8)(x^2+8x+64)$

C) $(x+8)(x^2+8x-64)$

D) $(x-8)(x^2-8x+64)$

E) Nonfactorable

72. Factor the following expression:

$y^3 + 729$

A) $(y-9)\left(y^2+9y+81\right)$

B) $(y+9)\left(y^2-9y+81\right)$

C) $(y+9)\left(y^2+9y-81\right)$

D) $(y-9)\left(y^2+9y-81\right)$

E) Nonfactorable

73. Factor the following expression:

$64a^3 + 125$

A) $(4a+5)\left(16a^2-20a+25\right)$

B) $(4a-5)\left(16a^2-20a+25\right)$

C) $(4a+5)\left(16a^2+20a+25\right)$

D) $(4a-5)\left(16a^2+20a+25\right)$

E) Nonfactorable

74. Factor the following expression:

$27x^3 - 64y^3$

A) $(3x-4y)\left(9x^2+16y^2\right)$

B) $(3x-4y)\left(9x^2+12xy+16y^2\right)$

C) $(3x-4y)\left(9x^2-12xy+16y^2\right)$

D) $(3x+4y)\left(9x^2-12xy+16y^2\right)$

E) Nonfactorable

75. Solve:

$(x+4)(x-2)=0$

A) 4, 2

B) 4, -2

C) –4, 2

D) –4, -2

E) No solution

76. Solve:

$x^2 + 11x + 18 = 0$

A) 2, 9
B) 2, -9
C) –2, 9
D) –2, -9
E) No solution

77. Solve:

$x^2 - 13x = -36$

A) 4, 9
B) 4, -9
C) –4, 9
D) –4, -9
E) No solution

78. Solve:

$y^2 - 25 = 0$

A) $5, -5$
B) $0, 25$
C) $0, 5$
D) 5
E) No solution

79. Solve:

$49a^2 - 9 = 0$

A) $0, \frac{3}{7}$
B) $0, \frac{9}{49}$
C) $\frac{3}{7}, -\frac{3}{7}$
D) $\frac{3}{7}$
E) No solution

80. Solve:

$$z^2 + 3z = 0$$

A) -3
B) $0, 3$
C) $0, -3$
D) $-3, 3$
E) No solution

81. Solve:

$$6a^2 - 24a = 0$$

A) 4
B) $0, 4$
C) $0, -4$
D) $4, -4$
E) No solution

82. Solve:

$$b(b + 2) = 0$$

A) -2
B) $0, 2$
C) $0, -2$
D) $-2, 2$
E) No solution

83. Solve:

$$z(5z + 2) = 0$$

A) $-\frac{2}{5}$
B) $0, \frac{2}{5}$
C) $0, -\frac{2}{5}$
D) $-5, 2$
E) No solution

84. Solve:

$c^2 - 12c + 20 = 0$

A) $2, 10$

B) $2, -10$

C) $-2, 10$

D) $-2, -10$

E) No solution

85. Solve:

$5x^2 - 23x - 10 = 0$

A) $-2, 5$

B) $\frac{2}{5}, 5$

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

D) $-\frac{2}{5}, -5$

E) No solution

86. Solve:

$11y^2 - 50y = 25$

A) $-5, 5$

B) $\frac{5}{11}, 5$

C) $-\frac{5}{11}, 5$

D) $-\frac{5}{11}, -5$

E) No solution

87. Identify the function whose graph will make a steeper parabola.

$f(x) = 3.78x^2$ or $g(x) = \pi x^2$

A) $f(x)$

B) $g(x)$

C) They are equal.

88. Identify the function whose graph will make a steeper parabola.

$g(x) = \pi x^2$ or $h(x) = 4x^2$

A) *g(x)*
B) *h(x)*
C) none

89. Identify the function whose graph will make a steeper parabola.

$k(x) = 4.3x^2$ or $g(x) = \pi x^2$

A) $g(x)$
B) $k(x)$
C) none

90. Identify the function whose graph will make a steeper parabola.

$g(x) = 2.514x^2$ or $h(x) = 2.62x^2$

A) $g(x)$
B) $h(x)$
C) none

91. Identify the function whose graph will make a steeper parabola.

$f(x) = \frac{2}{5}x^2$ or $g(x) = \frac{4}{7}x^2$

A) $f(x)$
B) $g(x)$
C) They are equal.

92. Describe the shift of $y = (2x)^2$ by $y = (2x+4)^2$.

A) shift 4 units to the left
B) shift 2 units to the left
C) shift 4 units to the right
D) shift 2 units to the right
E) shift 4 units up

93. Describe the shift of $y = x^2$ in terms of the value of r in $y = (x - r)^2$ if r is positive.

A) shift *r* units to the left
B) shift *r* units up
C) shift *r* units to the right and *r* units up
D) shift *r* units to the right
E) shift *r* units down

94. A graph has the same shape as $y = x^2$. Its vertex is $(0, -6)$. What is its equation? (There are two possibilities.)

A) $y = x^2 - 7$ or $y = -x^2 + 6$
B) $y = x^2 + 7$ or $y = -x^2 - 6$
C) $y = x^2 - 6$ or $y = -x^2 - 6$
D) $y = x^2 - 6$ or $y = -x^2 + 8$
E) $y = x^2 - 7$ or $y = x^2 + 6$

Answer Key

1. E
2. D
3. B
4. C
5. E
6. A
7. D
8. A
9. A
10. B
11. A
12. D
13. D
14. A
15. C
16. A
17. D
18. C
19. A
20. A
21. E
22. C
23. C
24. B
25. A
26. E
27. C
28. E
29. D
30. C
31. D
32. C
33. E
34. C
35. A
36. C
37. E
38. D
39. A
40. A
41. C
42. B
43. D
44. A

45. D
46. A
47. D
48. E
49. B
50. B
51. D
52. A
53. A
54. B
55. D
56. B
57. B
58. D
59. D
60. C
61. B
62. E
63. C
64. A
65. D
66. A
67. D
68. D
69. B
70. B
71. B
72. B
73. A
74. B
75. C
76. D
77. A
78. A
79. C
80. C
81. B
82. C
83. C
84. A
85. C
86. C
87. A
88. B
89. B
90. B

91. B
92. B
93. D
94. C