

Name _____ Period _____ Date _____

UNIT 11: QUADRATICS HOMEWORK PACKET

Lesson 1: Solving Quadratics by Square Roots (and Cube Roots)

Solve each quadratic (or cubic) equation by taking the square root (or cube root). No decimals.

1) $x^2 = 27$	2) $d^2 = 1$
3) $x^2 = 0$	4) $k^2 = -81$
5) $y^2 = 121$	6) $x^2 = 50$
7) $w^2 = 147$	8) $-6a^2 = -18$
9) $x^2 = 54$	10) $a^2 = -625$



Lesson 1 (continued): Solving Quadratics by Square Roots (and Cube Roots)

Solve each quadratic (or cubic) equation by taking the square root (or cube root). No decimals.

11) $x^3 = 1$	12) $y^3 = -8$
13) $2b^3 = 54$	14) $x^3 = 125$
15) $b^2 + 8 = 28$	16) $2n^2 = -144$
17) $4r^2 + 1 = 325$	18) $8a^2 - 7 = 193$
19) $d^2 + 8 = 80$	20) $10x^2 - 2 = 88$

Lesson 2: Graphing Quadratic Equations and Functions

Graph each quadratic equation/function on the provided coordinate plane.

21) $y = x^2 + 4x + 7$

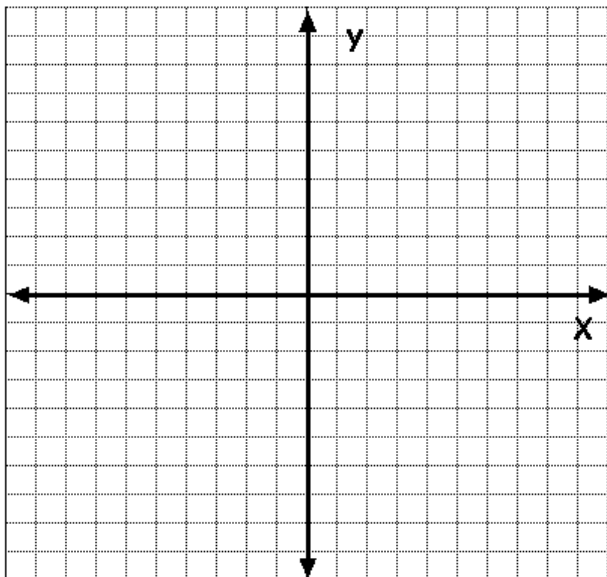
Axis of Symmetry: _____

Vertex: _____

Open Up / Open Down: _____

Maximum / Minimum: _____

x	y



22) $y = x^2 - 6x + 8$

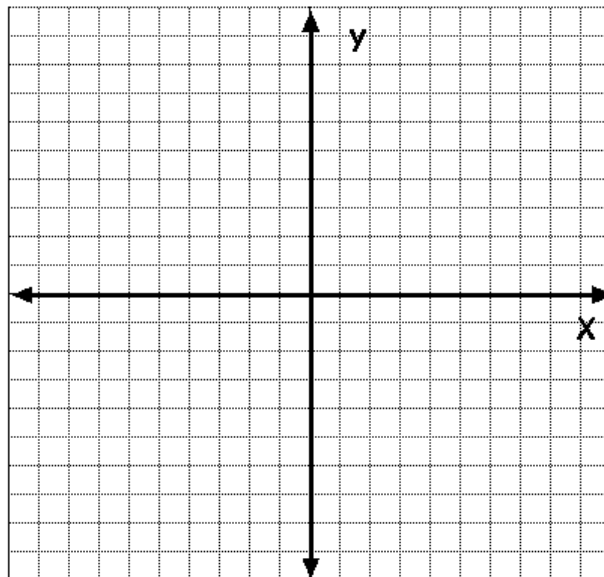
Axis of Symmetry: _____

Vertex: _____

Open Up / Open Down: _____

Maximum / Minimum: _____

x	y



Lesson 2 (continued): Graphing Quadratic Equations and Functions

Graph each quadratic equation/function on the provided coordinate plane.

23) $y = 3x^2 - 6x + 1$

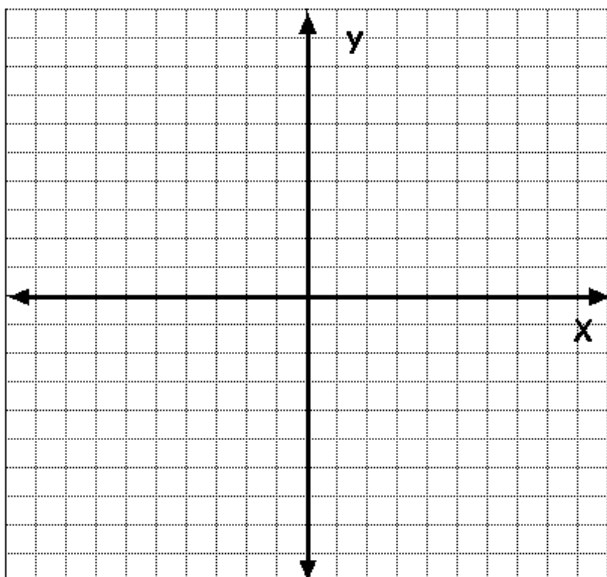
Axis of Symmetry: _____

Vertex: _____

Open Up / Open Down: _____

Maximum / Minimum: _____

x	y



24) $y = 2x^2 - 8x + 3$

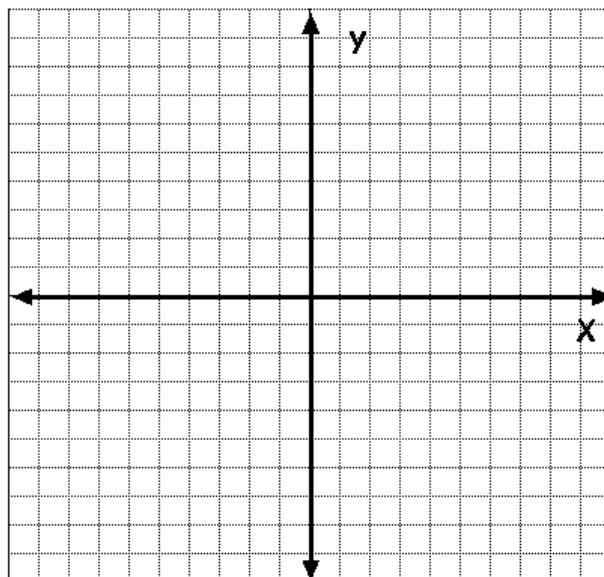
Axis of Symmetry: _____

Vertex: _____

Open Up / Open Down: _____

Maximum / Minimum: _____

x	y



Lesson 2 (continued): Graphing Quadratic Equations and Functions

Graph each quadratic equation/function on the provided coordinate plane.

25) $f(x) = -2x^2$

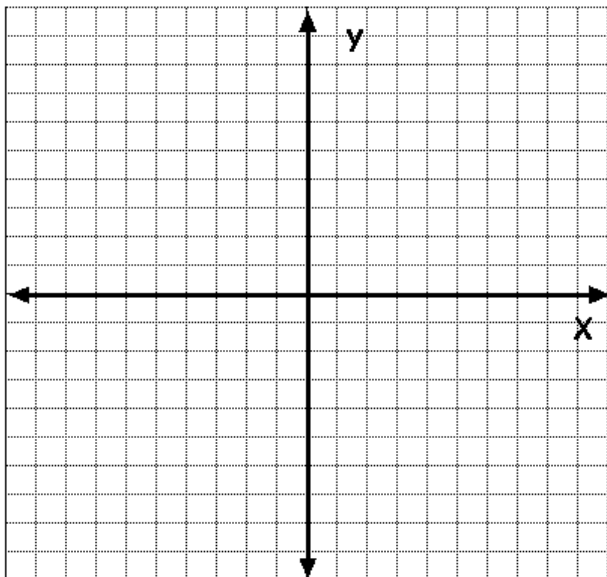
Axis of Symmetry: _____

Vertex: _____

Open Up / Open Down: _____

Maximum / Minimum: _____

x	y



26) $g(x) = -5x^2$

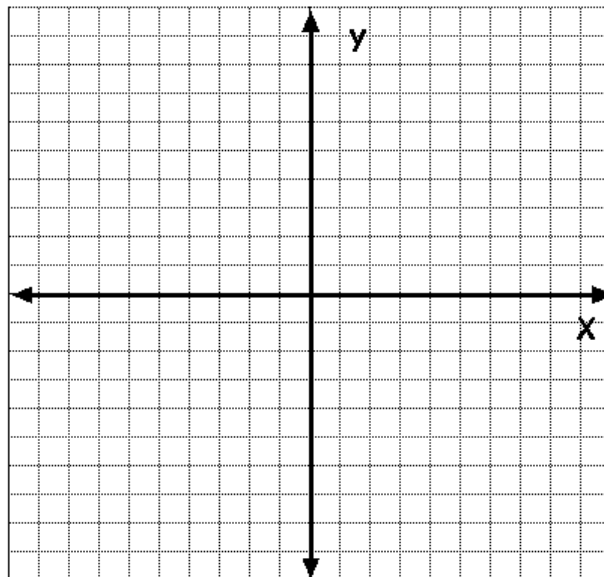
Axis of Symmetry: _____

Vertex: _____

Open Up / Open Down: _____

Maximum / Minimum: _____

x	y



Lesson 2 (continued): Graphing Quadratic Equations and Functions

Graph each quadratic equation/function on the provided coordinate plane.

27) $g(x) = -x^2 + 5x - 5$

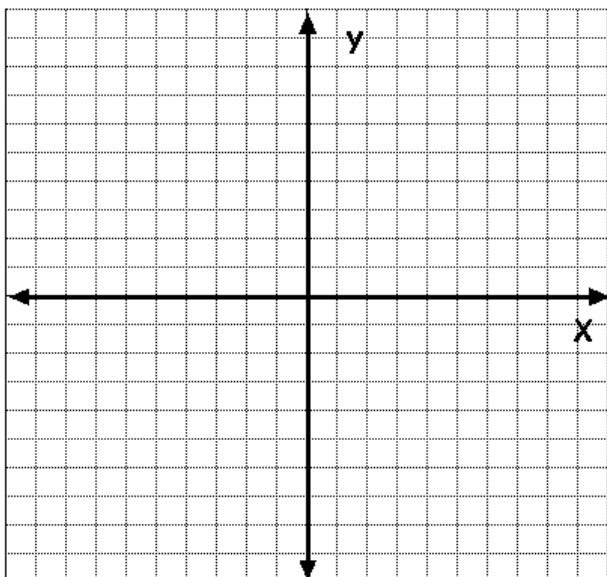
Axis of Symmetry: _____

Vertex: _____

Open Up / Open Down: _____

Maximum / Minimum: _____

x	y



28) $f(x) = 3x^2 + 3x + 1$

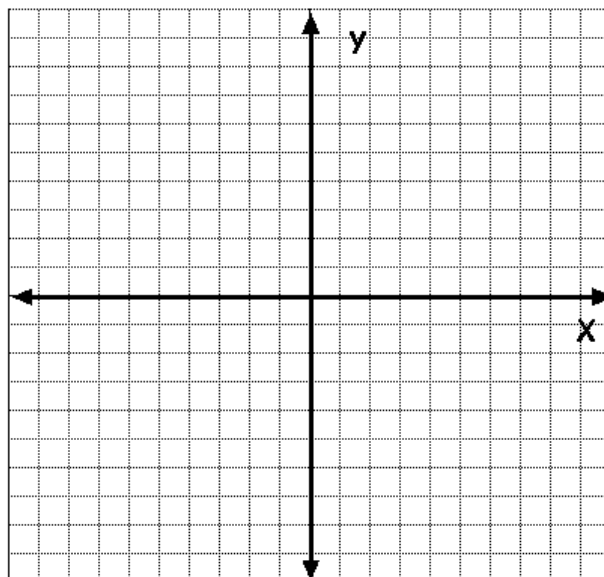
Axis of Symmetry: _____

Vertex: _____

Open Up / Open Down: _____

Maximum / Minimum: _____

x	y



Lesson 2 (continued): Graphing Quadratic Equations and Functions

Graph each quadratic equation/function on the provided coordinate plane.

29) $y = 2x^2 + 4x - 5$

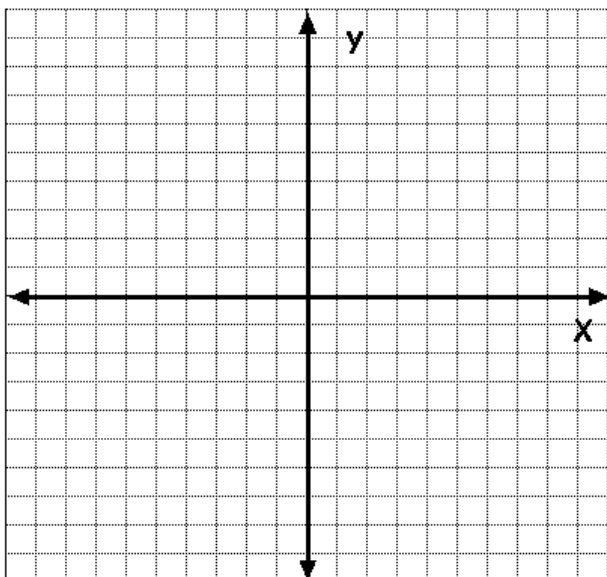
Axis of Symmetry: _____

Vertex: _____

Open Up / Open Down: _____

Maximum / Minimum: _____

x	y



30) $y = -x^2 - 4x - 6$

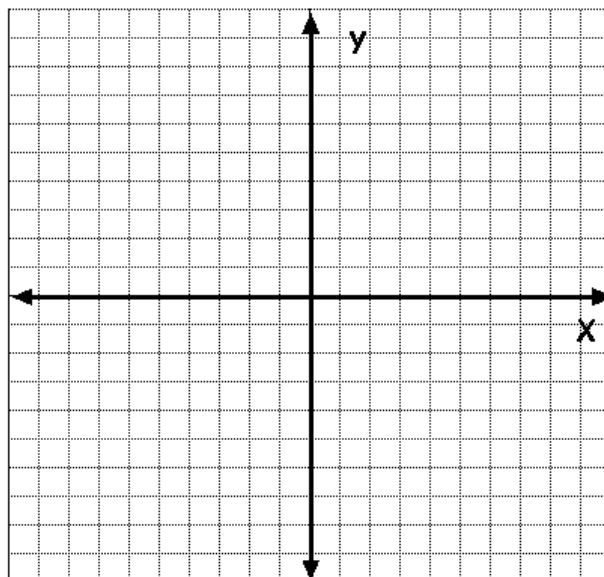
Axis of Symmetry: _____

Vertex: _____

Open Up / Open Down: _____

Maximum / Minimum: _____

x	y



Lesson 2 (continued): Graphing Quadratic Equations and Functions

Graph each quadratic equation/function on the provided coordinate plane.

31) $f(x) = x^2 - 2x + 1$

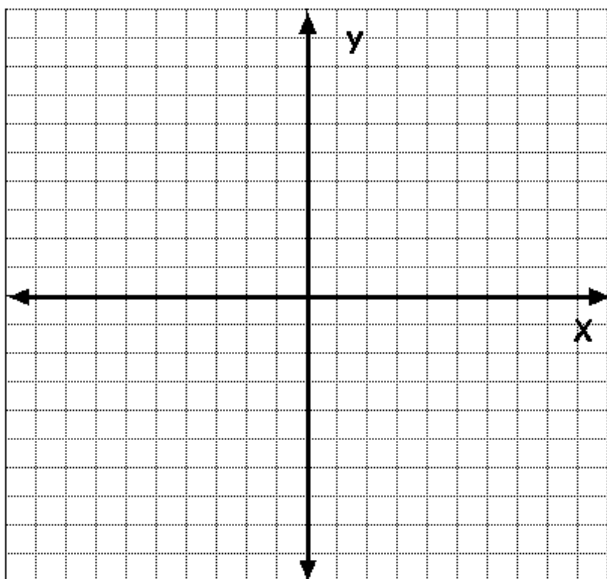
Axis of Symmetry: _____

Vertex: _____

Open Up / Open Down: _____

Maximum / Minimum: _____

x	y



32) $y = -x^2 - 8x - 13$

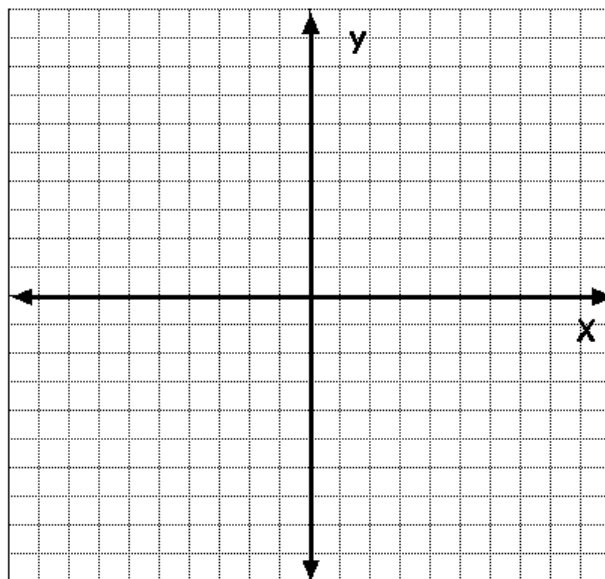
Axis of Symmetry: _____

Vertex: _____

Open Up / Open Down: _____

Maximum / Minimum: _____

x	y



Lesson 2 (continued): Graphing Quadratic Equations and Functions

Graph each quadratic equation/function on the provided coordinate plane.

33) $y = \frac{1}{2}x^2 + 2x + 1$

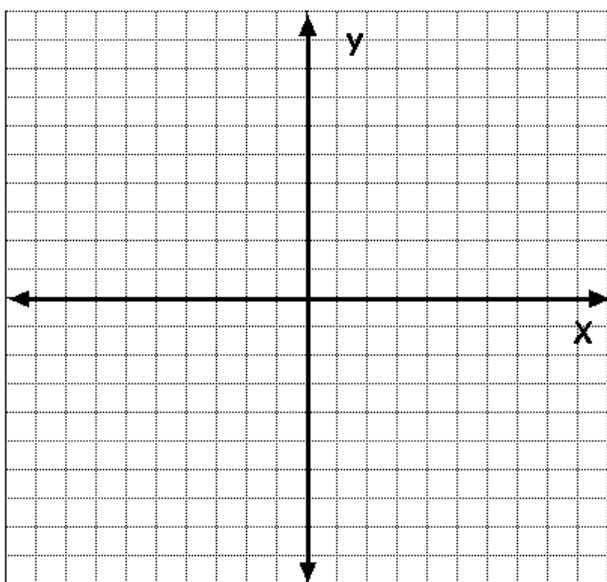
Axis of Symmetry: _____

Vertex: _____

Open Up / Open Down: _____

Maximum / Minimum: _____

x	y



34) $y = \frac{1}{4}x^2 + 2x + 1$

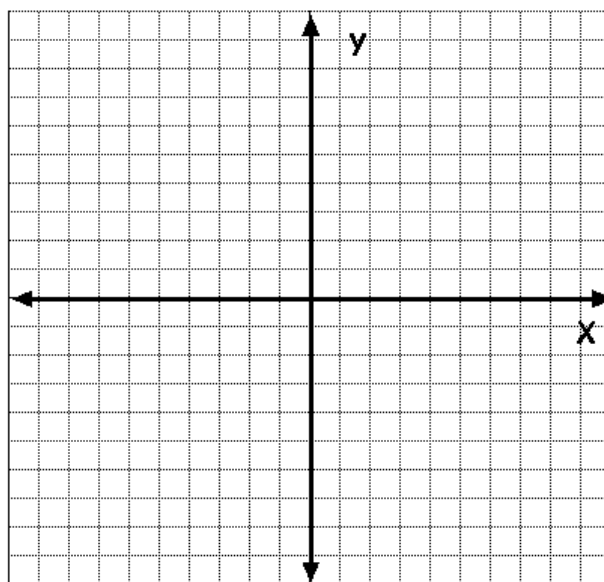
Axis of Symmetry: _____

Vertex: _____

Open Up / Open Down: _____

Maximum / Minimum: _____

x	y



Lesson 2 (continued): Graphing Quadratic Equations and Functions

Graph each quadratic equation/function on the provided coordinate plane.

35) $f(x) = -x^2 + 2x + 1$

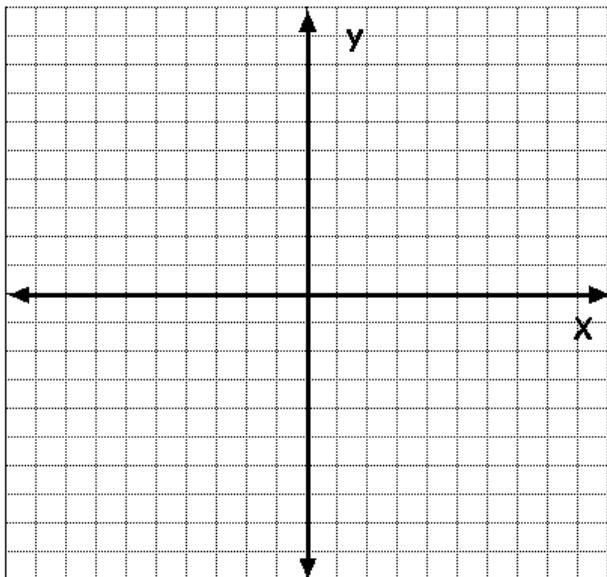
Axis of Symmetry: _____

Vertex: _____

Open Up / Open Down: _____

Maximum / Minimum: _____

x	y



36) $h(x) = 2x^2 - 16x + 33$

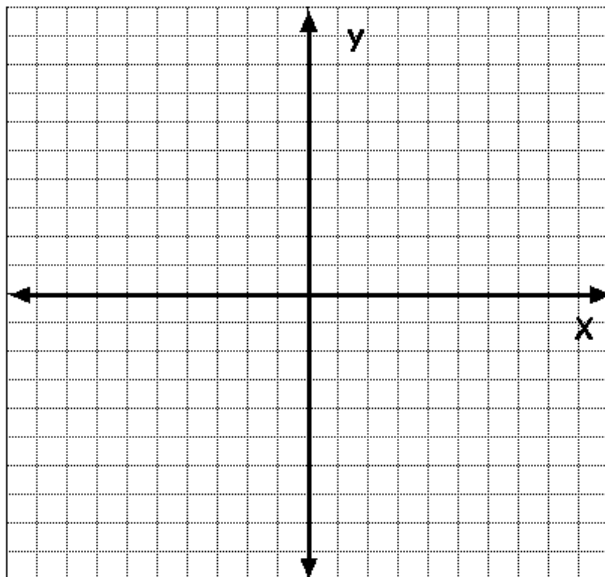
Axis of Symmetry: _____

Vertex: _____

Open Up / Open Down: _____

Maximum / Minimum: _____

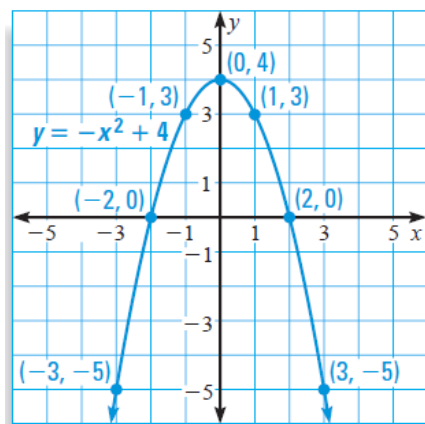
x	y



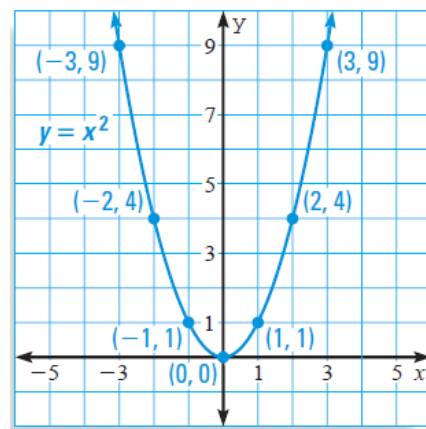
Lesson 3: Graphing Quadratic Equations and Functions

Identify the roots of each quadratic function.

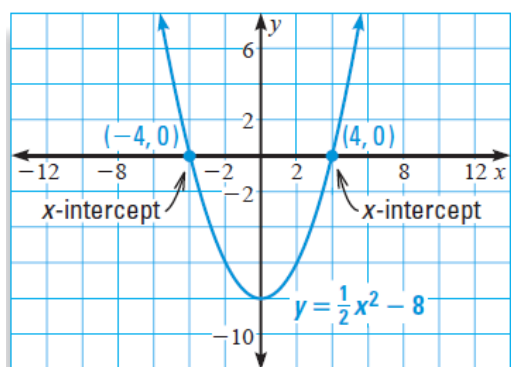
37)



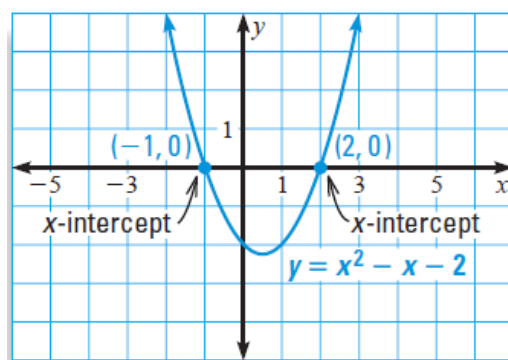
38)



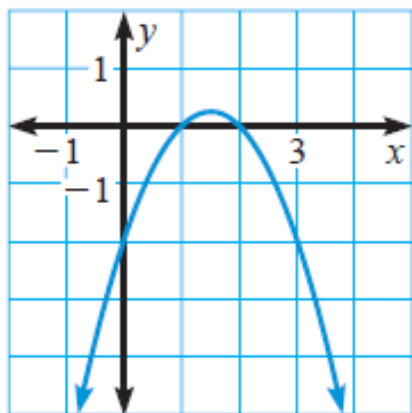
39)



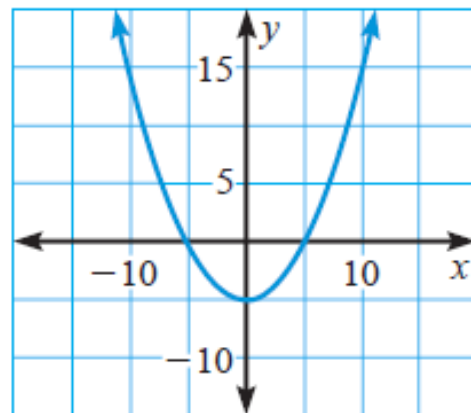
40)



41)



42)



Lesson 3 (continued): Graphing Quadratic Equations and Functions

Identify the roots of each quadratic function.

43) $y = 2x^2 + 4x$

Axis of Symmetry: _____

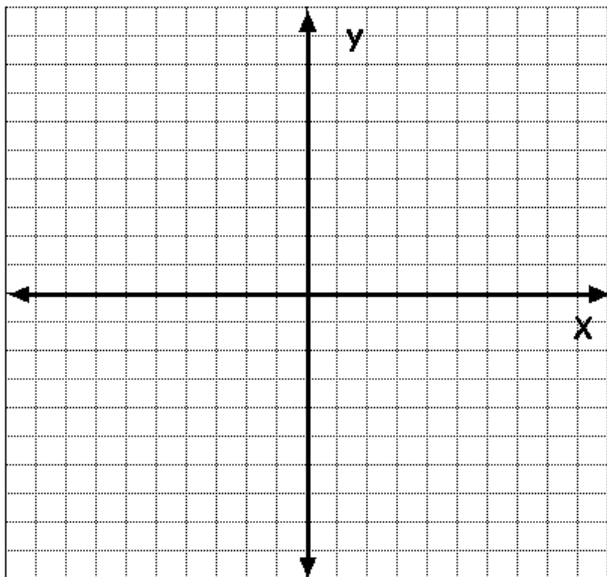
Vertex: _____

Open Up / Open Down: _____

Maximum / Minimum: _____

x	y

Roots: _____



44) $h(x) = -x^2 + 4x - 4$

Axis of Symmetry: _____

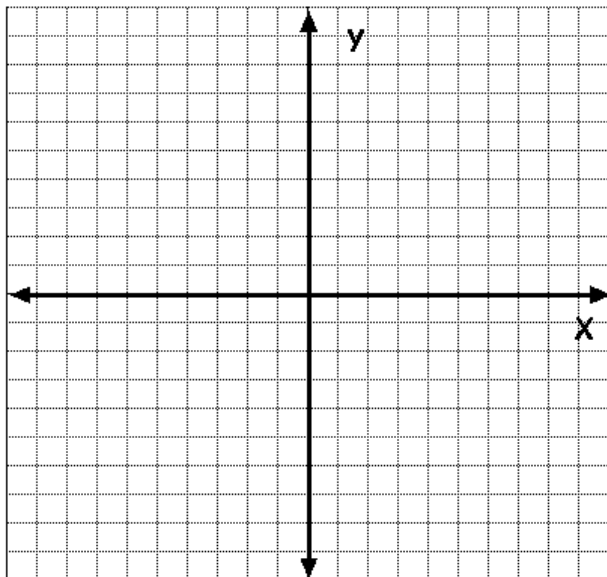
Vertex: _____

Open Up / Open Down: _____

Maximum / Minimum: _____

x	y

Roots: _____



Lesson 3 (continued): Graphing Quadratic Equations and Functions

Identify the roots of each quadratic function.

45) $f(x) = 2x^2 + 6x + 4$

Axis of Symmetry: _____

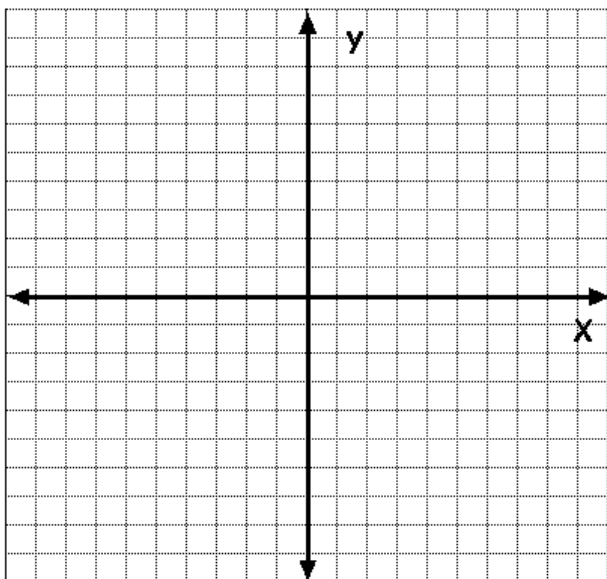
Vertex: _____

Open Up / Open Down: _____

Maximum / Minimum: _____

x	y

Roots: _____



46) $y = \frac{1}{3}x^2 + x - 6$

Axis of Symmetry: _____

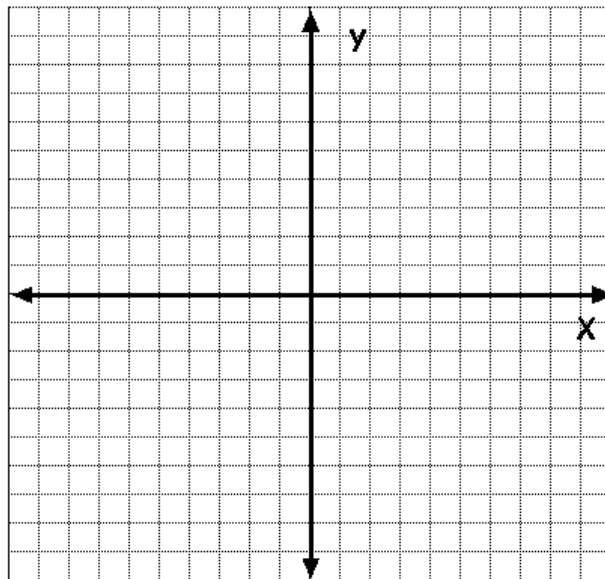
Vertex: _____

Open Up / Open Down: _____

Maximum / Minimum: _____

x	y

Roots: _____



$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

Lesson 4: The Quadratic Formula

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

Use the “Quadratic Formula” to solve each quadratic equation. No decimal answers.

47) Solve: $4x^2 + 8x + 7 = 4$	$a = \underline{\hspace{1cm}}$ $b = \underline{\hspace{1cm}}$ $c = \underline{\hspace{1cm}}$	48) Solve: $2x^2 - 7x - 13 = -10$	$a = \underline{\hspace{1cm}}$ $b = \underline{\hspace{1cm}}$ $c = \underline{\hspace{1cm}}$
49) Solve: $2x^2 - 3x - 20 = 0$	$a = \underline{\hspace{1cm}}$ $b = \underline{\hspace{1cm}}$ $c = \underline{\hspace{1cm}}$	50) Solve: $n^2 + 2n - 3 = 0$	$a = \underline{\hspace{1cm}}$ $b = \underline{\hspace{1cm}}$ $c = \underline{\hspace{1cm}}$
51) Solve: $2k^2 + 9k = -7$	$a = \underline{\hspace{1cm}}$ $b = \underline{\hspace{1cm}}$ $c = \underline{\hspace{1cm}}$	52) Solve: $5r^2 = 80$	$a = \underline{\hspace{1cm}}$ $b = \underline{\hspace{1cm}}$ $c = \underline{\hspace{1cm}}$

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

Lesson 4 (continued): The Quadratic Formula

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

Use the “Quadratic Formula” to solve each quadratic equation. No decimal answers.

53) Solve: $2y^2 - 36 = y$

$a = \underline{\hspace{2cm}}$

$b = \underline{\hspace{2cm}}$

$c = \underline{\hspace{2cm}}$

54) Solve: $5x^2 + 9x = -4$

$a = \underline{\hspace{2cm}}$

$b = \underline{\hspace{2cm}}$

$c = \underline{\hspace{2cm}}$

55) Solve: $k^2 - 31 - 2k = -6 - 3k^2 - 2k$

$a = \underline{\hspace{2cm}}$

$b = \underline{\hspace{2cm}}$

$c = \underline{\hspace{2cm}}$

56) Solve: $9n^2 = 4 + 7n$

$a = \underline{\hspace{2cm}}$

$b = \underline{\hspace{2cm}}$

$c = \underline{\hspace{2cm}}$

57) Solve: $9x^2 + 4x - 16 = 0$

$a = \underline{\hspace{2cm}}$

$b = \underline{\hspace{2cm}}$

$c = \underline{\hspace{2cm}}$

58) Solve: $8n^2 + 7n - 15 = -7$

$a = \underline{\hspace{2cm}}$

$b = \underline{\hspace{2cm}}$

$c = \underline{\hspace{2cm}}$

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

Lesson 4 (continued): The Quadratic Formula

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

Use the “Quadratic Formula” to solve each quadratic equation. No decimal answers.

59) Solve: $x^2 + 6x - 7 = 0$

$a =$ ____
 $b =$ ____
 $c =$ ____

60) Solve: $x^2 - 2x - 15 = 0$

$a =$ ____
 $b =$ ____
 $c =$ ____

61) Solve: $x^2 + 12x + 36 = 0$

$a =$ ____
 $b =$ ____
 $c =$ ____

62) Solve: $4h^2 - 8h + 3 = 0$

$a =$ ____
 $b =$ ____
 $c =$ ____

63) Solve: $3y^2 + y - 1 = 0$

$a =$ ____
 $b =$ ____
 $c =$ ____

64) Solve: $x^2 + 6x - 3 = 0$

$a =$ ____
 $b =$ ____
 $c =$ ____

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

Lesson 4 (continued): The Quadratic Formula

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

Use the “Quadratic Formula” to solve each quadratic equation. No decimal answers.

65) Solve: $2x^2 + 6x = 9$

$a = \underline{\hspace{2cm}}$

$b = \underline{\hspace{2cm}}$

$c = \underline{\hspace{2cm}}$

66) Solve: $5x^2 + 8x = 8$

$a = \underline{\hspace{2cm}}$

$b = \underline{\hspace{2cm}}$

$c = \underline{\hspace{2cm}}$

67) Solve: $0 = 4x^2 + 8x - 1$

$a = \underline{\hspace{2cm}}$

$b = \underline{\hspace{2cm}}$

$c = \underline{\hspace{2cm}}$

68) Solve: $0 = m^2 - 5m - 14$

$a = \underline{\hspace{2cm}}$

$b = \underline{\hspace{2cm}}$

$c = \underline{\hspace{2cm}}$

69) Solve: $b^2 - 4b + 4 = 0$

$a = \underline{\hspace{2cm}}$

$b = \underline{\hspace{2cm}}$

$c = \underline{\hspace{2cm}}$

70) Solve: $2x^2 - 3x - 20 = 0$

$a = \underline{\hspace{2cm}}$

$b = \underline{\hspace{2cm}}$

$c = \underline{\hspace{2cm}}$

$$b^2 - 4ac$$

Lesson 5: The Discriminant

$$b^2 - 4ac$$

Find the discriminant of the equation. Tell if it has *two solutions*, *one solution*, or *no real solution*.

71) $x^2 - 3x + 2 = 0$	72) $2x^2 - 4x + 3 = 0$
73) $-3x^2 + 5x - 1 = 0$	74) $3x^2 - 2x + 5 = 0$
75) $-3y^2 + 6y - 3 = 0$	76) $b^2 - 5b - 10 = 0$
77) $-\frac{1}{3}x^2 + x + 4 = 0$	78) $6x^2 - 2x + 4 = 0$
79) $3x^2 - 6x + 3 = 0$	80) $\frac{1}{2}k^2 + \frac{2}{3}k - 3 = 0$