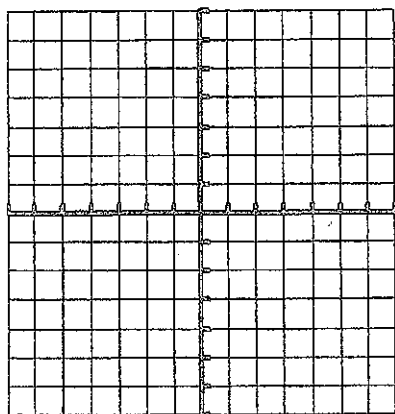


Name \_\_\_\_\_

Graphing and Converting  
Quadratic Equations WS

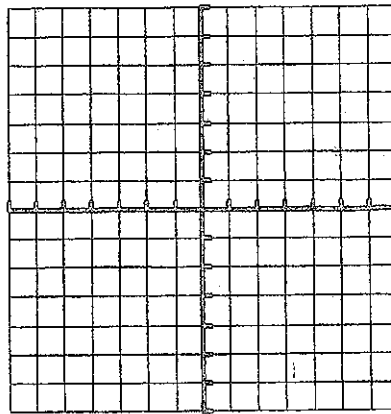
Graph each of the following quadratic functions. Identify the appropriate characteristics.

1.  $f(x) = -(x-1)(x-5)$



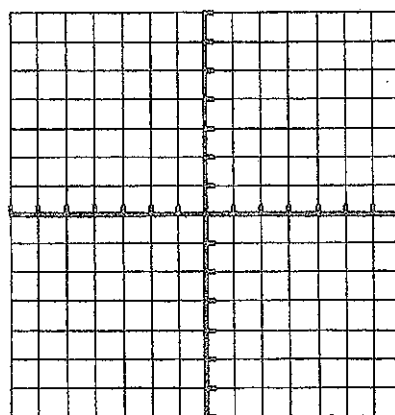
x-Intercept(s): \_\_\_\_\_  
Vertex: \_\_\_\_\_  
Axis of Symmetry: \_\_\_\_\_  
y-intercept: \_\_\_\_\_

2.  $h(x) = 2(x-2)^2$



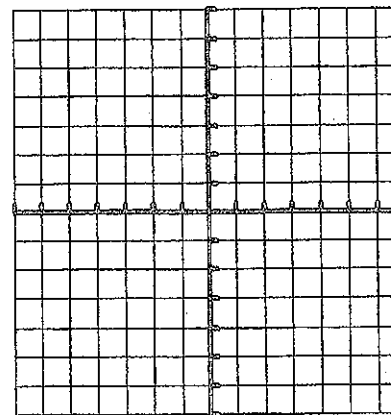
x-intercept(s): \_\_\_\_\_  
Vertex: \_\_\_\_\_  
Axis of Symmetry: \_\_\_\_\_  
y-Intercept: \_\_\_\_\_

3.  $g(x) = 2x^2 + 8x + 6$



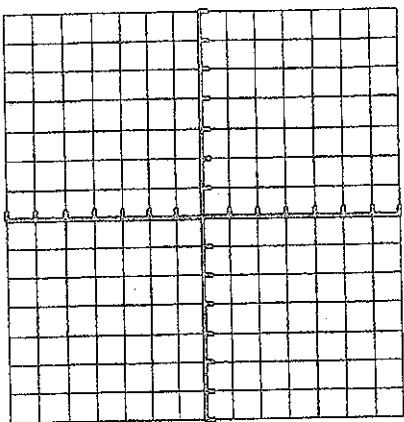
x-Intercept(s): \_\_\_\_\_  
Vertex: \_\_\_\_\_  
Axis of Symmetry: \_\_\_\_\_  
y-intercept: \_\_\_\_\_

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



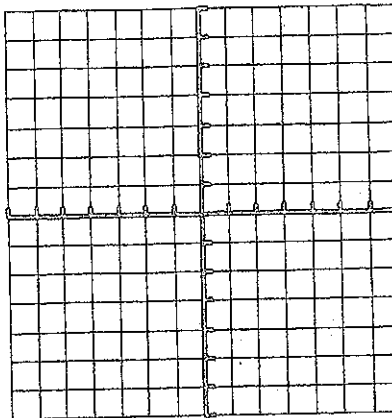
x-Intercept(s): \_\_\_\_\_  
Vertex: \_\_\_\_\_  
Axis of Symmetry: \_\_\_\_\_  
y-intercept: \_\_\_\_\_

5.  $f(x) = -\frac{1}{2}(x-1)(x+3)$



x-Intercept(s): \_\_\_\_\_  
 Vertex: \_\_\_\_\_  
 Axis of Symmetry: \_\_\_\_\_  
 y-intercept: \_\_\_\_\_

6.  $g(x) = -x^2 + 10x - 24$



x-Intercept(s): \_\_\_\_\_  
 Vertex: \_\_\_\_\_  
 Axis of Symmetry: \_\_\_\_\_  
 y-intercept: \_\_\_\_\_

7. Convert the following equations to standard form.

a.  $f(x) = -\frac{1}{2}(x-1)(x+3)$

b.  $h(x) = (x-3)^2 + 2$

8. Convert the following equations to intercept form.

a.  $g(x) = -x^2 + 10x - 24$

b.  $f(x) = 2(x+2)^2 - 2$

9. Convert the following equations to vertex form.

a.  $g(x) = 2x^2 + 8x + 6$

b.  $f(x) = -(x-1)(x-5)$

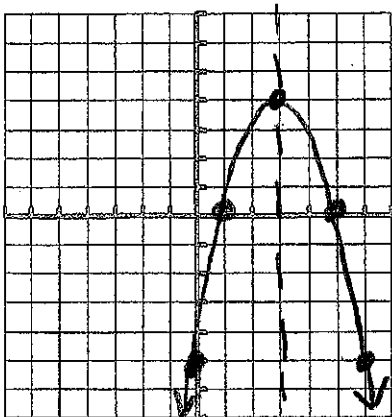
Name \_\_\_\_\_

Key

Graphing and Converting  
Quadratic Equations WS

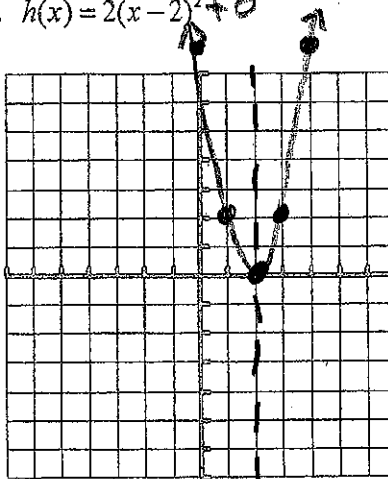
Graph each of the following quadratic functions. Identify the appropriate characteristics.

1.  $f(x) = -(x-1)(x-5)$  <sup>Intercept</sup>



x-Intercept(s):  $(1, 0)$   $(5, 0)$   
 Vertex:  $(3, 4)$   
 Axis of Symmetry:  $\frac{1+5}{2} = \frac{6}{2} = 3$   
 y-intercept:  $(0, -5)$

2.  $h(x) = 2(x-2)^2 + 0$  <sup>Vertex</sup>

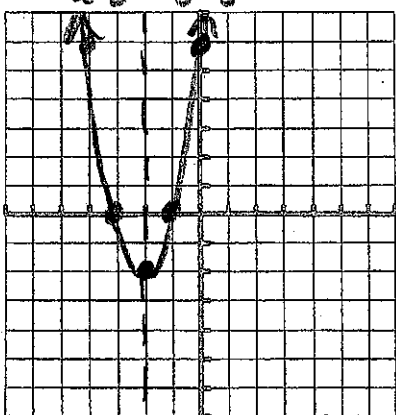


x-Intercept(s):  $(2, 0)$   
 Vertex:  $(2, 0)$   
 Axis of Symmetry:  $x = 2$   
 y-intercept:  $(0, 8)$

v.

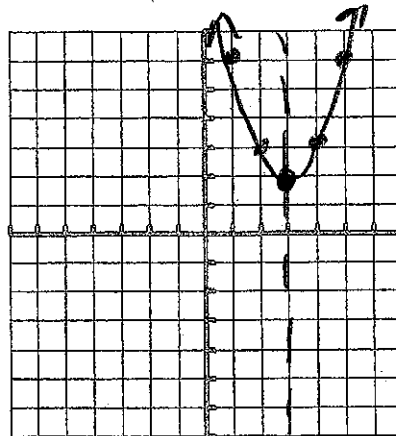
x	y
0	8
1	2
2	0
3	2
4	8

3.  $g(x) = 2x^2 + 8x + 6$  <sup>standard</sup>  $a=2$   $b=8$   $x = -\frac{b}{2a} = -\frac{8}{2(2)} = -2$   
 4.  $h(x) = (x-3)^2 + 2$  <sup>Vertex</sup>



x-Intercept(s):  $(-1, 0)$   $(-3, 0)$   
 Vertex:  $(-2, -2)$   
 Axis of Symmetry:  $x = -2$   
 y-intercept:  $(0, 6)$

x	y
-1	0
-2	-2
-3	0
-4	6



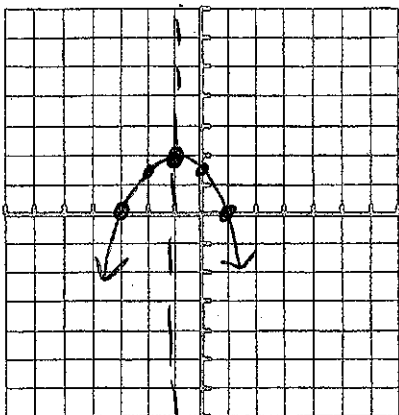
x-Intercept(s):  $(1, 0)$   $(5, 0)$   
 Vertex:  $(3, 2)$   
 Axis of Symmetry:  $x = 3$   
 y-intercept:  $(0, 11)$

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

$$\frac{2x}{2} + \frac{8x}{2} - \frac{4}{2}$$

$$x^2 + 4x - 2$$

5.  $f(x) = -\frac{1}{2}(x-1)(x+3)$



x	y
-1	2
0	1.5
-1	2
-2	1.5
-3	0

x-Intercept(s): (1, 0) (-3, 0)

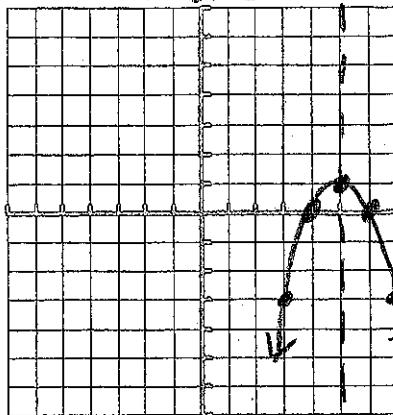
Vertex: (-1, 2)

Axis of Symmetry:  $\frac{1-3}{2} = \frac{-2}{2} = -1$

y-intercept: (0, 1.5)

6.  $g(x) = -x^2 + 10x - 24$   
 $a = -1$   $b = 10$

$$x = \frac{-b}{2a} = \frac{-10}{2(-1)} = 5$$



x	y
3	-3
4	0
5	1
6	0
7	-3

x-Intercept(s): (4, 0) (6, 0)

Vertex: (5, 1)

Axis of Symmetry: x = 5

y-intercept: (0, -24) ← Not Helpful!

7. Convert the following equations to standard form.

a.  $f(x) = -\frac{1}{2}(x-1)(x+3)$

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

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

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

b.  $h(x) = (x-3)^2 + 2$

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

$$y = x^2 - 3x - 3x + 9 + 2$$

$$y = x^2 - 6x + 11$$

8. Convert the following equations to intercept form.

a.  $g(x) = -x^2 + 10x - 24$

$$y = -(x^2 - 10x + 24)$$

$$y = -(x-6)(x-4)$$

$$\begin{array}{r} 24 \\ \times 4 \\ \hline -6 \end{array}$$

b.  $f(x) = 2(x+2)^2 - 2$  Convert to standard then int.

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

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

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

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

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

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

$$\begin{array}{r} 3 \\ \times 4 \\ \hline 12 \end{array}$$

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

9. Convert the following equations to vertex form.

a.  $g(x) = 2x^2 + 8x + 6$

$a = 2$   $b = 8$

$$\frac{-b}{2a} = \frac{-8}{2(2)} = -2$$

$$y = 2(-2)^2 + 8(-2) + 6$$

$$y = -2$$

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

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

b.  $f(x) = -(x-1)(x-5)$  Convert to standard then intercept

$$y = -(x^2 - 5x - 1x + 5)$$

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

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

$a = -1$   $b = 6$

$$\frac{-b}{2a} = \frac{-6}{2(-1)} = 3$$

$$y = -(3-1)(3-5) \quad y = 4$$

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

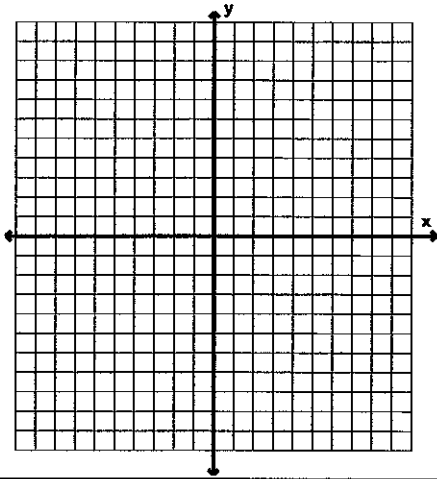
# Parabola Practice

Name \_\_\_\_\_ Per \_\_\_\_\_

## Side A

Sketch a graph of each equation that shows the vertex and at least two points to the left and right of the vertex.

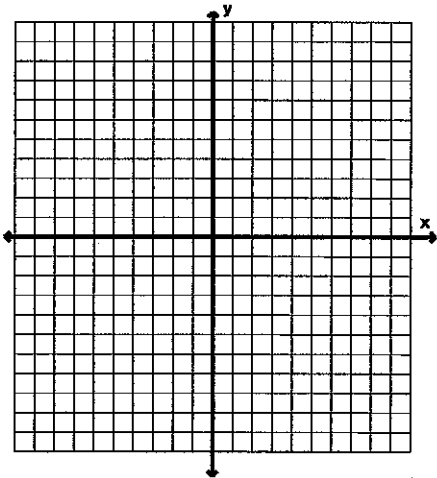
1.  $y = -2(x + 1)^2 + 2$



Vertex →

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

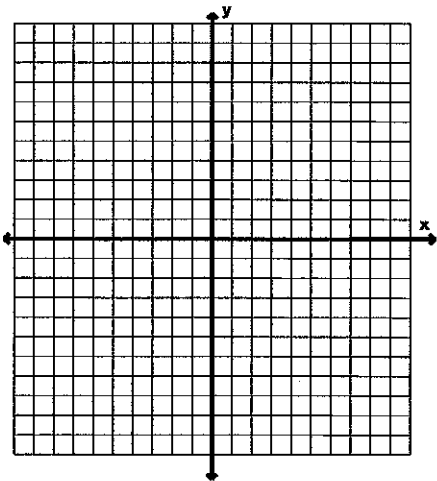
2.  $y = (x + 1)(x - 3)$



Vertex →

x	$y = (x + 1)(x - 3)$

3.  $y = x^2 - 4x + 7$



Vertex →

x	$y = x^2 - 4x + 7$