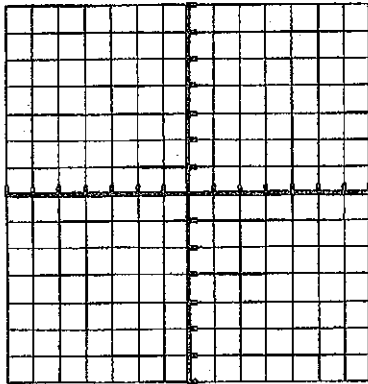


AC Math 1
Graphing and Converting
Quadratic Equations WS

Name _____

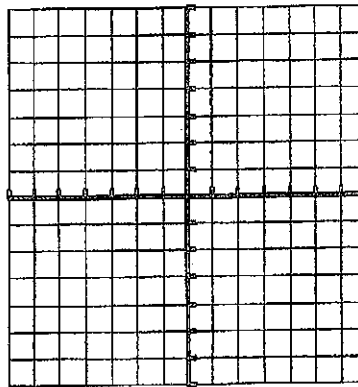
Graph each of the following quadratic functions. Identify the appropriate characteristics.

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



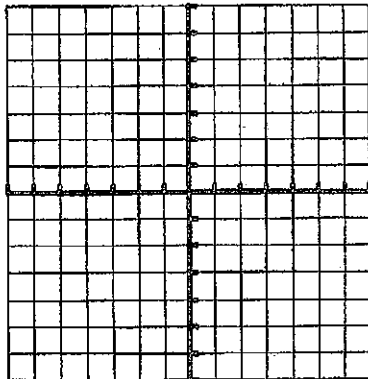
x-Intercept(s): _____
Vertex: _____
Axis of Symmetry: _____
y-intercept: _____

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



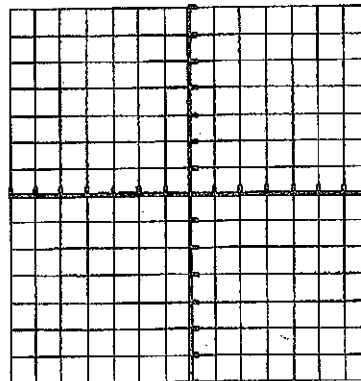
Vertex: _____
Axis of Symmetry: _____
y-intercept: _____

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



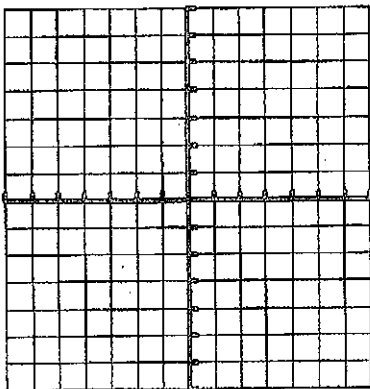
Vertex: _____
Axis of Symmetry: _____
y-intercept: _____

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



Vertex: _____
Axis of Symmetry: _____
y-intercept: _____

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



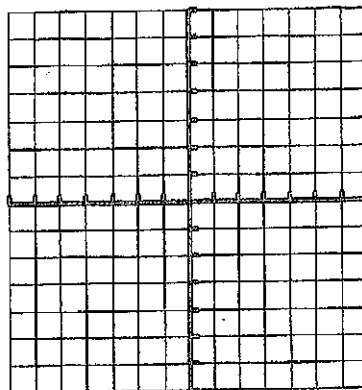
x-intercept(s): _____

Vertex: _____

Axis of Symmetry: _____

y-intercept: _____

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



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

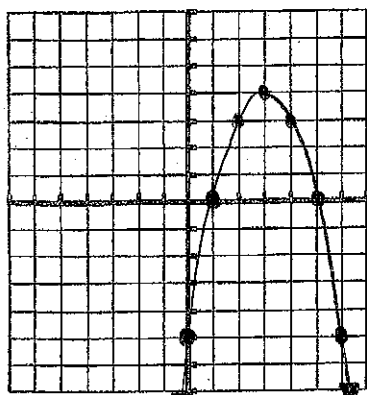
AC Math 1
Graphing and Converting
Quadratic Equations WS

Name _____

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

(intercept) ① $f(x) = -(x-1)(x-5)$ ← opposite opposite

X	Y
0	-5
1	0
3	4
5	0
6	-5



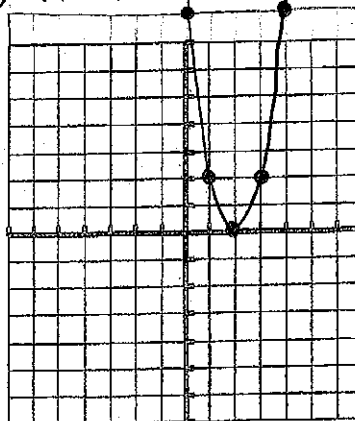
FORMULA

$$x = \frac{p+q}{2}$$

$$x = \frac{1+5}{2} = 3$$

x-Intercept(s): $(1, 0)$ $(5, 0)$
 Vertex: $(3, 4)$
 Axis of Symmetry: $x = 3$
 y-intercept: $(0, -5)$

② $h(x) = 2(x-2)^2 + 0$ ← opposite same



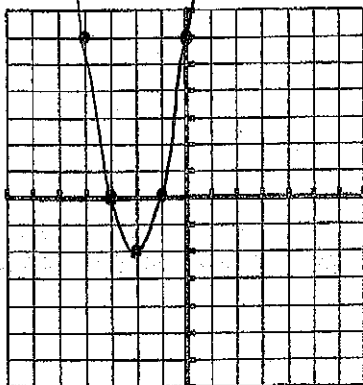
(vertex)

X	Y
0	8
1	2
2	0
3	2
4	8

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

(standard) ③ $g(x) = 2x^2 + 8x + 6$ $a=2, b=8, c=6$ ④ $h(x) = (x-3)^2 + 2$ ← opposite same (vertex)

X	Y
-4	6
-3	0
-2	-2
-1	0
0	6

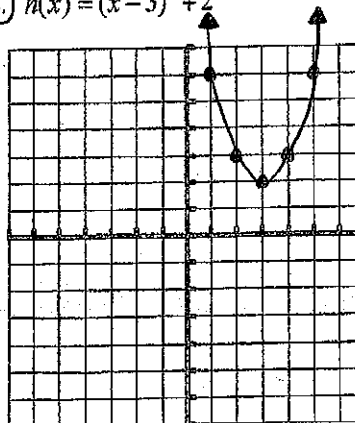


FORMULA

$$x = \frac{-b}{2a}$$

$$x = \frac{-8}{2(2)} = -2$$

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



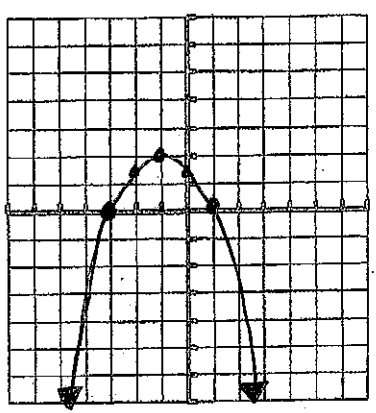
X	Y
1	6
2	3
3	2
4	3
5	6

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

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

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

X	Y
-3	0
-2	1.5
-1	2
0	1.5
1	0

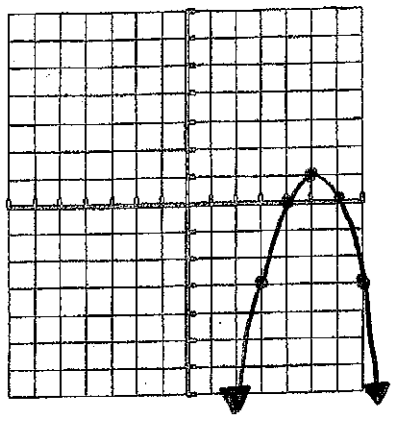


FORMULA

$$x = \frac{p+q}{2}$$

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

x-Intercept(s): $(1, 0)$ $(-3, 0)$
 Vertex: $(-1, 2)$
 Axis of Symmetry: $x = -1$
 y-Intercept: $(0, 1.5)$



X	Y
3	-3
4	0
5	1
6	0
7	-3

FORMULA

$$x = \frac{-b}{2a}$$

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

Vertex: $(5, 1)$
 Axis of Symmetry: $x = 5$
 y-Intercept: $(0, -24)$

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

Graphing and Converting Quadratic Equations WS

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

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

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

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

intercept
to
standard

✓ b. $h(x) = (x-3)^2 + 2$

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

$$h(x) = x^2 - 3x - 3x + 9 + 2$$

$$h(x) = x^2 - 6x + 11$$

vertex
to
standard

8. ✓ a. $g(x) = -x^2 + 10x - 24$

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

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

standard
to
intercept

✓ b. $f(x) = 2(x+2)^2 - 2$

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

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

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

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

$$f(x) = 2x^2 + 8x + 6$$

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

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

vertex
to
intercept

⊗ use A.O.S. formula: $x = \frac{-b}{2a}$

9. ✓ a. $g(x) = 2x^2 + 8x + 6$
 $a=2$ $b=8$ $c=6$

$$x = \frac{-8}{2(2)} = \frac{-8}{4} = (-2)$$

Standard
to
vertex

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

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

✓ b. $f(x) = -(x-1)(x-5)$

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

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

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

$$a = -1 \quad b = 6 \quad c = -5$$

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

$$y = -(3)^2 + 6(3) - 5 = (4)$$

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