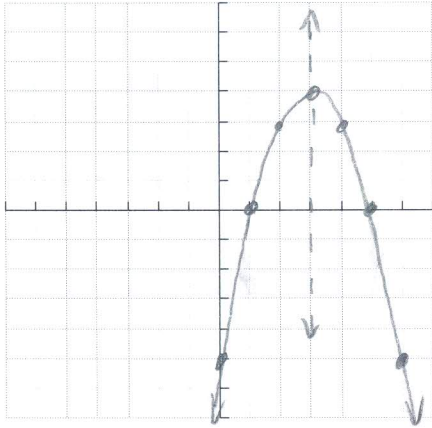


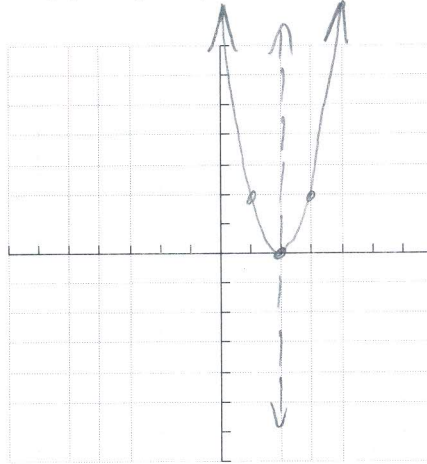
AC Math 1
 Graphing and Converting
 Quadratic Equations

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

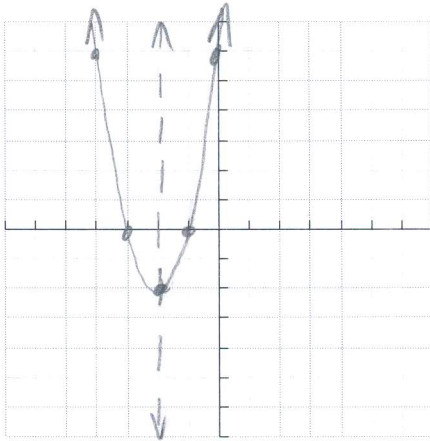
1. $f(x) = -(x-1)(x-5)$


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

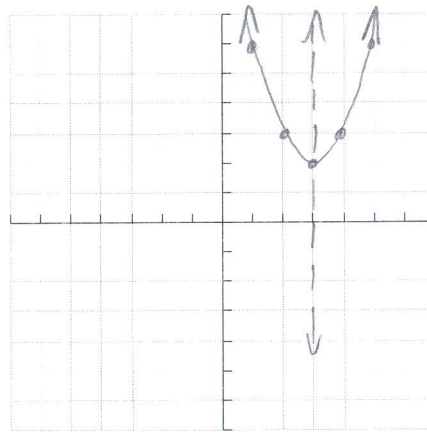
2. $h(x) = 2(x-2)^2$


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

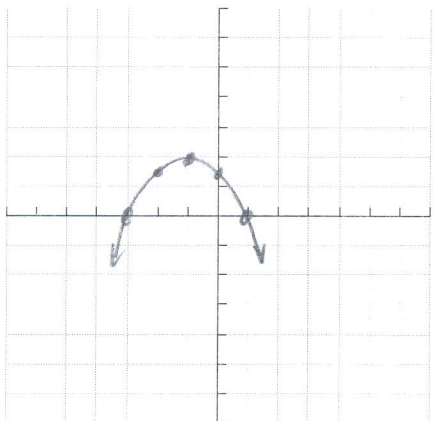
3. $g(x) = 2x^2 + 8x + 6$


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

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

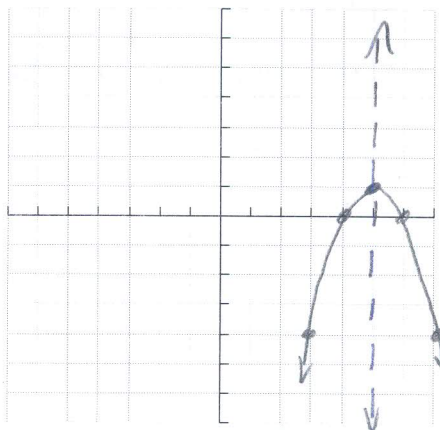

 x-Intercept(s): n/a n/a
 Vertex: (3, 2)
 Axis of Symmetry: $x = 3$
 y-intercept: (0, 11)

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



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

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



x-Intercept(s): (4, 0) (6, 0)
 Vertex: (5, 1)
 Axis of Symmetry: x = 5
 y-intercept: (0, -24)

7. Convert the following equations to standard form.

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

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

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

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

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

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

8. Convert the following equations to intercept form.

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

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

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

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

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

$$= 2x^2 + 8x + 6 = 2(x^2 + 4x + 3)$$

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

9. Convert the following equations to vertex form.

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

$$= 2(x^2 + 4x + 4) + 6 - 8$$

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

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

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

$$f(x) = -x^2 + 6x - 5 \text{ standard}$$

$$= -(x^2 - 6x + 9) - 5 + 9$$

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