

Name \_\_\_\_\_ Key Period \_\_\_\_\_

Writing Equations in Vertex and Factored Forms

Possible answers are given

Use the given information to write a quadratic function in **factored form**.

1. The parabola opens up and the x-intercepts are (3, 0) and (-2, 0)

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

2. The parabola opens down and the x-intercepts are (0, 0) and (4, 0)

$$g(x) = -x(x-4), g(x) = -2x(x-4), \text{ etc.}$$

3. The parabola opens down and the x-intercepts are (-10, 0) and (-3, 0)

$$h(x) = -100(x+10)(x+3), h(x) = -0.5(x+10)(x+3), \text{ etc.}$$

4. The parabola opens up and the x-intercepts are (6, 0) and (1, 0)

$$j(x) = (x-6)(x-1), j(x) = 20(x-6)(x-1), \text{ etc.}$$

5. The parabola opens down and the x-intercepts are (-5, 0) and (2, 0)

$$k(x) = -2(x+5)(x-2), k(x) = -50(x+5)(x-2), \text{ etc.}$$

Use the given information to write a possible equation for the quadratic function in vertex form.

6. The vertex is (-1, 3) and the parabola opens up.

$$m(x) = (x+1)^2 + 3, m(x) = 4(x+1)^2 + 3, \text{ etc.}$$

7. The vertex is (4, 0) and the parabola opens down.

(the + 0 at the end would be simplified)

$$n(x) = -(x-4)^2, n(x) = -\frac{1}{3}(x-4)^2$$

8. The vertex is (2, 5) and the parabola opens down.

$$p(x) = -3(x-2)^2 + 5, p(x) = -\frac{4}{5}(x-2)^2 + 5, \text{ etc.}$$

9. The vertex is (-7, -4) and the parabola opens up.

$$q(x) = 5(x+7)^2 - 4, q(x) = .3(x+7)^2 - 4, \text{ etc.}$$

10. The vertex is (0, -6) and the parabola opens up.  $(x-0)^2 = x^2$

$$r(x) = 7x^2 - 6, r(x) = 10x^2 - 6, \text{ etc.}$$