

Name \_\_\_\_\_

## 2-3 Additional Practice

### Factored Form of a Quadratic Function

Do 2-18 evens only

Factor each quadratic expression.

1.  $x^2 + 4x - 21$

2.  $x^2 - 2x - 15$

3.  $2x^2 - 17x + 30$

Identify the zeros of each function.

4.  $y = 5(x - 3)(x + 5)$

5.  $y = (x - 9)(x + 4)$

6.  $y = (x - 7)^2$

Solve each quadratic equation by factoring.

7.  $x^2 = -5x$

8.  $-2x^2 + 5x + 12 = 0$

9.  $7x^2 + 25x + 12$

10.  $5x^2 = 3x + 2$

11.  $-4x^2 + 15x + 4 = 0$

12.  $x^2 - 4x + 3 = 0$

Identify the interval(s) on which each quadratic function is positive or negative as shown.

13.  $y = 2x^2 - 17x + 30$  Positive

14.  $y = -7x^2 + 35x - 28$  Positive

15.  $y = -x^2 - 6x - 8$  Negative

16.  $y = 2x^2 - 4x - 16$  Negative

17. A rock is thrown upward from the edge of a bridge and onto a road that is 10 feet below the bridge. The function  $h(x) = -x^2 + 3x + 10$  gives the height,  $h$ , in feet, the rock travels in  $x$  seconds from the time it was thrown. When will the rock hit the road?

18. Write an equation of a parabola with  $x$ -intercepts at  $(\frac{1}{4}, 0)$  and  $(-7, 0)$  which passes through the point  $(0, 7)$ .