## 2-3 Additional Practice

## Factored Form of a Quadratic Function

Factor each quadratic expression.

1. $x^{2}+4 x-21$
2. $x^{2}-2 x-15$
3. $2 x^{2}-17 x+30$

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. $x^{2}=-5 x$
8. $-2 x^{2}+5 x+12=0$
9. $7 x^{2}+25 x+12$
10. $5 x^{2}=3 x+2$
11. $-4 x^{2}+15 x+4=0$
12. $x^{2}-4 x+3=0$

Identify the interval(s) on which each quadratic function is positive or negative as shown.
13. $y=2 x^{2}-17 x+30 \quad$ Positive $\quad$ 14. $y=-7 x^{2}+35 x-28 \quad$ Positive
15. $y=-x^{2}-6 x-8 \quad$ Negative
16. $y=2 x^{2}-4 x-16 \quad$ 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 $h(x)=-x^{2}+3 x+10$ 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 $\left(\frac{1}{4}, 0\right)$ and $(-7,0)$ which passes through the point $(0,7)$.

