Name _____ Class _____ Date _____

# 9-8 Practice

*Form K*

## Systems of Linear and Quadratic Functions

**Solve each system by graphing.**

**1.** $y = x^2 - 3x$
$y = x + 5$

**2.** $y = x^2 + 2x$
$y = 3x$

**3.** $y = x^2$
$y = -2x$

**4.** $y = x^2 + 6x + 1$
$y = x - 3$

**Solve each system using elimination.**

**5.** $y = x^2$
$y = 3x$

**6.** $y = x^2 - 5x$
$y = x - 8$

**7.** $y = x^2 + 6x - 8$
$y = x - 2$

**8.** $y = x^2 + 20x + 80$
$y = x - 10$

**9.** The sales of two different products are modeled by the equations shown below. The sales are represented by $y$ and the number of weeks the products have been selling is represented by $x$. According to the projections, what week(s) did the products have the same amount of sales? What were the sales of both products during the week(s) of equal sales?
Product 1: $y = x^2 - 17x + 89$
Product 2: $y = 17x + 25$

**10.** The population of two different villages are modeled by the equations shown below. The population (in thousands) is represented by $y$ and the number of years since 1975 is represented by $x$. What year(s) did the villages have the same population? What was the population of both cities during the year(s) of equal population?

Lewiston: $y = x^2 - 30x + 540$

Lockport: $y = 20x + 15$

Name _____ Class _____ Date _____

# 9-8 Practice (continued) *Form K*

## Systems of Linear and Quadratic Functions

**Solve each system using substitution.**

**11.** $y = x^2 - 3x - 27$
$y = x - 6$

**12.** $y = x^2 - x - 5$
$y = 2x - 1$

**13.** $y = x^2 - 4x - 15$
$y = -3x + 5$

**14.** $y = x^2 - 6$
$y = -7x + 12$

**Solve each system using a graphing calculator.**

**15.** $y = x^2 + x - 60$
$y = x + 4$

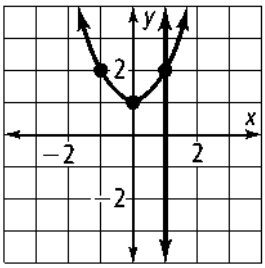
**16.** $y = x^2 - 6x - 35$
$y = x + 25$

**17.** $y = x^2 - x + 0.5$
$y = x - 0.25$

**18.** $y = x^2 + 0.15x - 0.04$
$y = 0.2x + 0.1$

**19. Writing** What are the solutions of the system $y = 3x^2 + 2x - 20$ and $y = 2x^2 + 6x + 1$? Explain how you solved the system.

**20. Reasoning** The graph at the right shows a quadratic function and the linear function $x = b$.




**a.** How many solutions does this system have?

**b.** Will the number of solutions be the same for any value of $b$? Explain.

**c.** If the linear function were changed to $y = b$, would the number of solutions be the same for any value of $b$?