Name _____

6-3B Lesson Master

Questions on SPUR Objectives
See Student Edition pages 446–449 for objectives.

VOCABULARY

1. Write the general vertex form of an equation for a parabola. _____

2. If a parabola opens down, does it have a *minimum* or *maximum* y-value? _____

PROPERTIES   Objective G

3. The graph of $y = x^2$ is translated 12 units to the left and 6 units up.

   a. Give the coordinates of the vertex of the image. _____

   b. Write an equation for its image. _____

4. The graph of $y = -5x^2$ is translated 3 units to the right and 7 units down.

   a. Write an equation for its image. _____

   b. $(1, -5)$ is a point on the graph of $y = -5x^2$. What is the
      corresponding point on the image? _____

**In 5 and 6, assume parabola *Q* is a translation image of
parabola *P*. Refer to the graph at the right.**

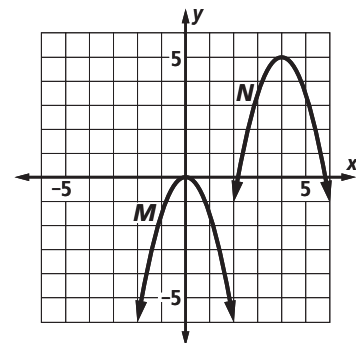5. What translation maps parabola *P* onto parabola *Q*?

   _____

6. Parabola *P* has equation $y = -2x^2$. Write an
   equation for parabola *Q*.

   _____
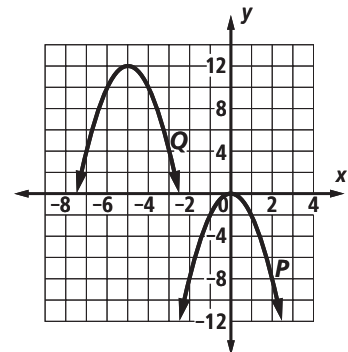
**In 7 and 8, assume parabola *N* is a translation image of
parabola *M*. Refer to the graph at the right.**

7. What translation maps parabola *M* onto parabola *N*?

   _____

8. Parabola *M* has equation $y = -\frac{3}{2}x^2$. Write an equation for
   parabola *N*.

   _____

Name

In 9–12, an equation and a translation are given. a. Give an equation for the image of the graph of the equation under the translation. b. Give an equation for the axis of symmetry.

9. $y = 4x^2$, $T_{-3,5}$ a. _____ b. _____

10. $y = -7x^2$, $T_{6,2}$ a. _____ b. _____

11. $y = -\frac{7}{3}x^2$, $T_{-4,-4}$ a. _____ b. _____

12. $y = -\frac{1}{2}x^2$, $T_{0,-8}$ a. _____ b. _____
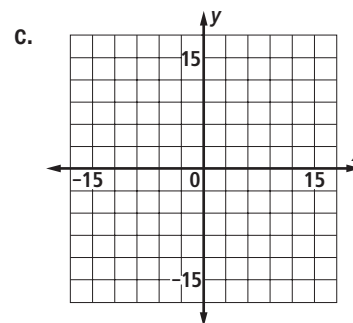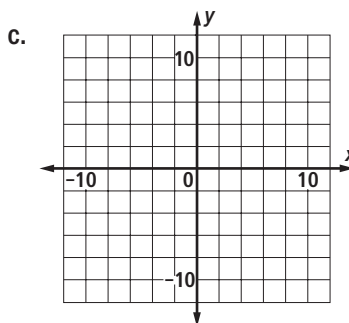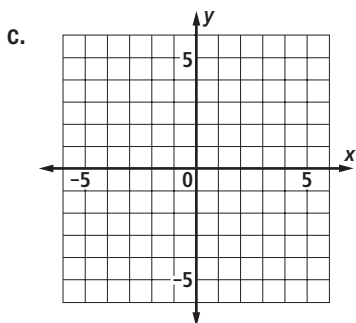
REPRESENTATIONS Objective K

In 13–18, an equation for a parabola is given. a. Write an equation for its axis of symmetry. b. Identify its vertex. c. Graph the parabola and its axis of symmetry.

13. $y = 3(x + 1)^2$

a. _____

b. _____

c.

14. $y + 4 = -3x^2$

a. _____

b. _____

c.

15. $y - 5 = (x + 3)^2$

a. _____

b. _____

c.

16. $y = 2(x - 3)^2$

a. _____

b. _____

c.

17. $y - 1 = (x + 4)^2$

a. _____

b. _____

c.

18. $y + 3 = x^2$

a. _____

b. _____

c.