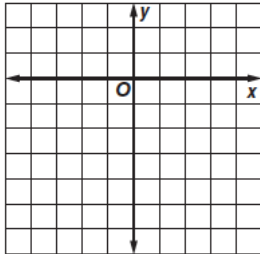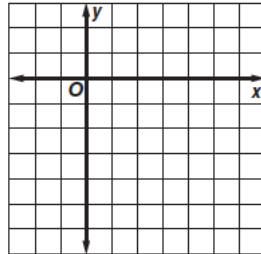## Practice

Graphing Quadratic Functions

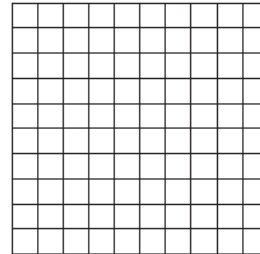Use a table of values to graph each function.
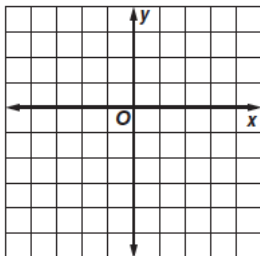
1. $y = -x^2 + 2$

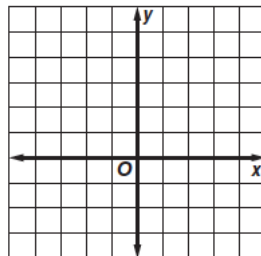**2.** $y = x^2 - 6x + 3$

3. $y = -2x^2 - 8x - 5$

Write the equation of the axis of symmetry, and find the coordinates of the vertex of the graph of each function. Identify the vertex as a maximum or minimum. Then graph the function.
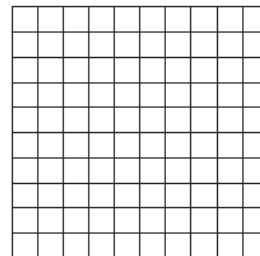
4. $y = -x^2 + 3$

5. $y = -2x^2 + 8x - 3$

6. $y = 2x^2 + 8x + 1$

PHYSICS For Exercises 7–9, use the following information.

Miranda throws a set of keys up to her brother, who is standing on a third-story balcony with his hands 38 feet above the ground. If Miranda throws the keys with an initial velocity of 40 feet per second, the equation $h = -16t^2 + 40t + 5$ gives the height h of the keys after t seconds.

7. How long does it take the keys to reach their highest point?

8. How high do the keys reach?

9. Will her brother be able to catch the keys? Explain.

BASEBALL For Exercises 10–12, use the following information.

A player hits a baseball at a 45° angle with the ground with an initial velocity of 80 feet per second from a height of three feet above the ground. The equation $h = -0.005x^2 + x + 3$ gives the path of the ball, where h is the height and x is the horizontal distance the ball travels.

10. What is the equation of the axis of symmetry?

11. What is the maximum height reached by the baseball?

12. An outfielder catches the ball three feet above the ground. How far has the ball traveled horizontally when the outfielder catches it?