LESSON 10.2 **Practice C**
For use with pages 635–640

Tell whether the graph opens upward or downward. Then find the axis of symmetry and vertex of the graph of the function.

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

2. $y = \frac{5}{2}x^2 - 2x + 1$

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

4. $y = -9x^2 + 9x$

5. $y = \frac{2}{3}x^2 - 9$

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

7. $y = \frac{1}{8}x^2 - 2x$

8. $y = -\frac{1}{5}x^2 + 7$

9. $y = -6x^2 + 12x + 5$

10. $y = 4x^2 - 12x + 8$

11. $y = 5x^2 + 10x - 3$

12. $y = -6x^2 + 8x - 10$

Find the vertex of the graph of the function. Make a table of values using *x*-values to the left and right of the vertex.
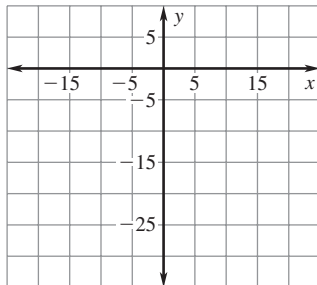
13. $y = \frac{1}{4}x^2 - 2x + 5$

x	?	?	?	?	?
y	?	?	?	?	?

14. $y = -\frac{5}{2}x^2 + 10x - 1$

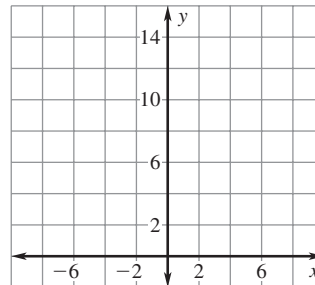| x	?	?	?	?	?
y	?	?	?	?	?

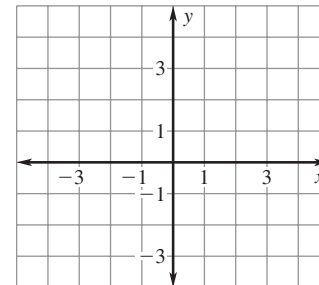**Graph the function. Label the vertex and axis of symmetry.**

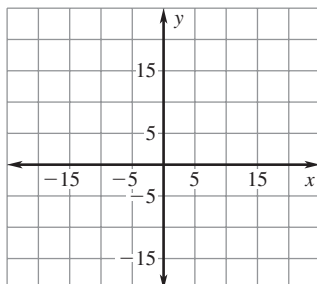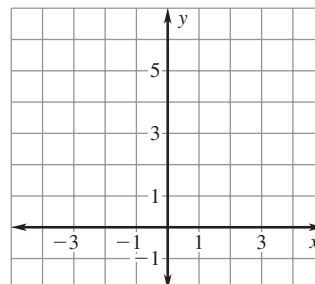**15.** $y = -x^2 - 15$
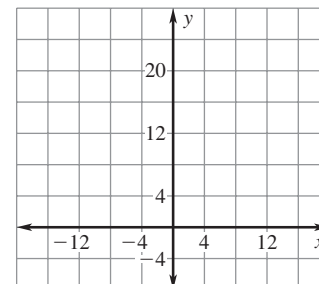
16. $y = 6x^2 + 8$

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

18. $y = -x^2 + 20$

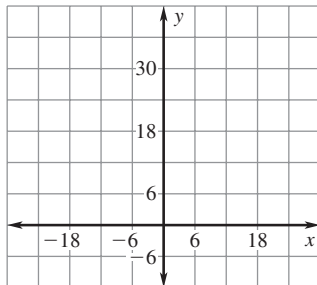**19.** $y = 7x^2 - 14x + 6$

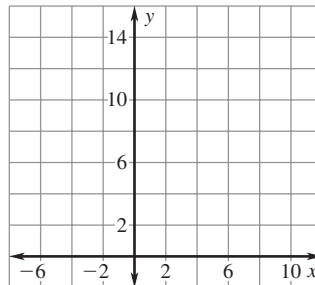**20.** $y = -3x^2 + 18x - 4$

LESSON 10.2

LESSON 10.2 | **Practice C** *continued*

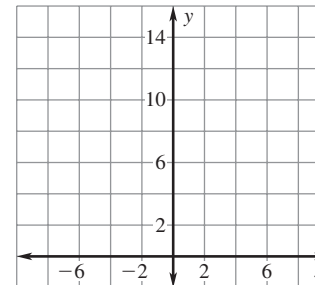For use with pages 635–640

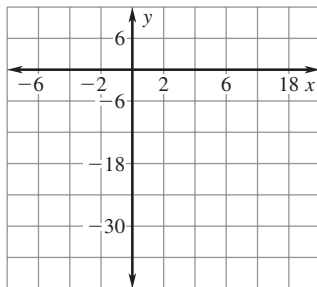**21.** $y = -\frac{7}{2}x^2 + 21x - 5$
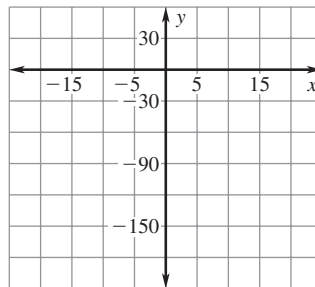
22. $y = \frac{1}{4}x^2 - 2x + 10$
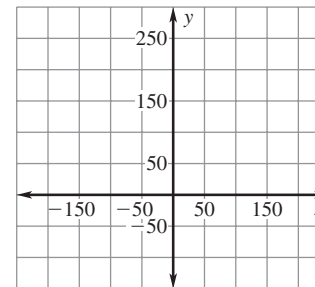
23. $y = 6x^2 - 12x + 13$

24. $y = \frac{5}{3}x^2 - 15x + 2$

25. $y = \frac{7}{4}x^2 + 35x - 4$

26. $y = -\frac{2}{5}x^2 - 20x + 5$

Tell whether the function has a *minimum value* or a *maximum value*. Then find the minimum or maximum value.

27. $f(x) = 9x^2 - 36$

28. $f(x) = -\frac{3}{4}x^2 + 18x - 7$

29. $f(x) = \frac{5}{4}x^2 - 10x + 3$

30. Lamps A lighting company offers two models of small lamps, both of which contain a reflector in the shape of a parabola. The shape of the reflector in lamp A can be modeled by the function $y = -0.16x^2 + 25$ and the shape of the reflector in lamp B can be modeled by the function $y = -0.2x^2 + 20$ where x and y are measured in millimeters.

a. Find the maximum value of each function, which gives the height of the reflector.

b. How much taller is the reflector for lamp A than the reflector for lamp B?

31. Window An artist designs a window in a house to be in the shape of a parabola as shown. The top part of the window can be modeled by the function $y = -1.875x^2 + 7.5x$ and the bottom part of the window can be modeled by the function $y = 1.5$ where x represents the width of the window (in feet) and y represents the height of the window (in feet) above the ground. How tall is the window? *Explain* how you got your answer.