

LESSON 9.2 Practice C
 For use with the lesson "Graph $y = ax^2 + bx + c$ "

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. $y = \frac{1}{4}x^2 - 2x + 5$

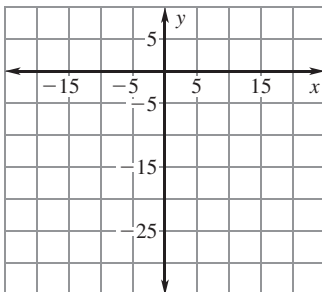
14. $y = -\frac{5}{2}x^2 + 10x - 1$

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

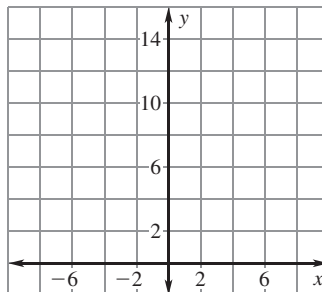
x	?	?	?	?	?
y	?	?	?	?	?

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

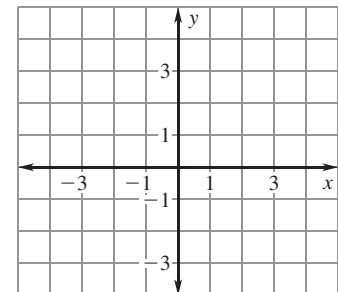
15. $y = -x^2 - 15$



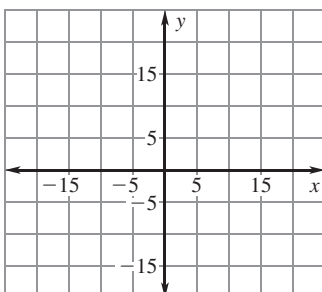
16. $y = 6x^2 + 8$



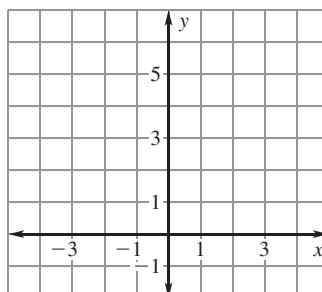
17. $y = -4x^2 + 4x + 3$



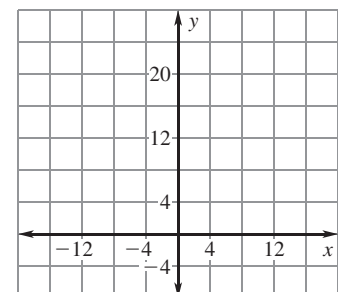
18. $y = -x^2 + 20$



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



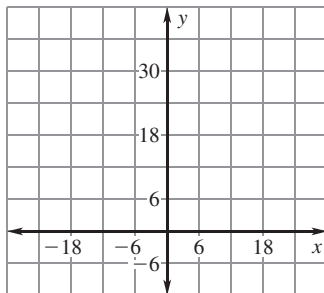
20. $y = -3x^2 + 18x - 4$



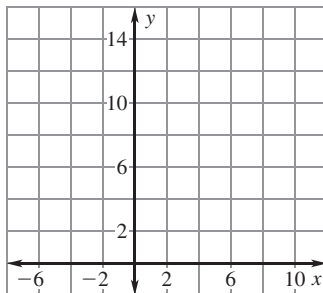
LESSON
9.2

Practice C *continued*
For use with the lesson "Graph $y = ax^2 + bx + c$ "

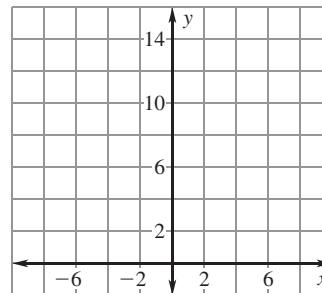
21. $y = -\frac{7}{2}x^2 + 21x - 5$



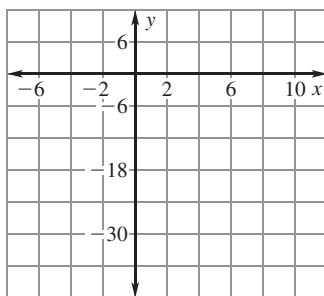
22. $y = \frac{1}{4}x^2 - 2x + 10$



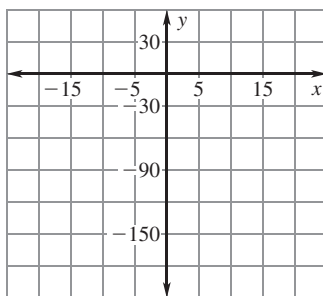
23. $y = 6x^2 - 12x + 13$



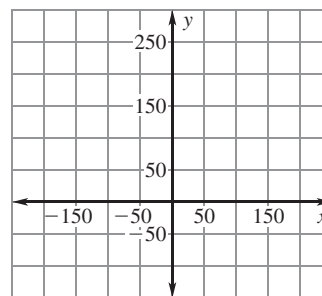
24. $y = \frac{5}{3}x^2 - 15x + 2$



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.



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

