

# Practice 77

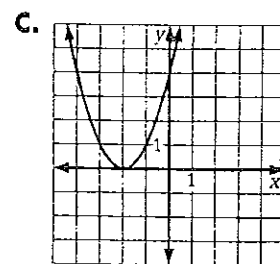
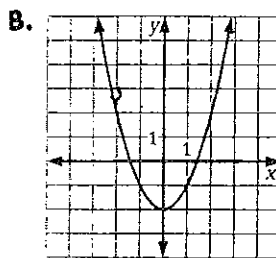
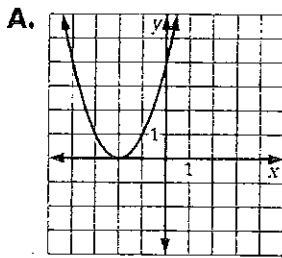
For use with Section 10-2

In Exercises 1–3, match each function with its graph.

1.  $y = x^2 - 2$

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

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



In Exercises 4–9, describe in words the translation of the graph of  $y = x^2$  that produces the graph of each equation.

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

5.  $y = x^2 + 4$

6.  $y = x^2 - 1$

7.  $y = (x + 5)^2$

8.  $y = (x - 6)^2$

9.  $y = x^2 + 7$

Tell how to translate the graph of  $y = x^2$  or  $y = -x^2$  in order to produce the graph of each function.

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

11.  $y = x^2 + 5$

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

13.  $y = -(x - 1)^2$

14.  $y = -x^2 - 6$

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

16.  $y = (x - 4)^2$

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

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

For the graph of each function, find an equation of the line of symmetry and the coordinates of the vertex.

19.  $y = x^2 - 5$

20.  $y = (x + 1)^2$

21.  $y = (x - 10)^2$

22.  $y = -(x - 8)^2$

23.  $y = -x^2 + 11$

24.  $y = x^2 - 7$

Find a function whose graph fits each description and has the same shape as the graph of  $y = x^2$ .

25. vertex at the point (3, 0)

26. translation of  $y = x^2$  up 5 units

27. translation of  $y = -x^2$  left 6 units

28. vertex at the point (-9, 0)