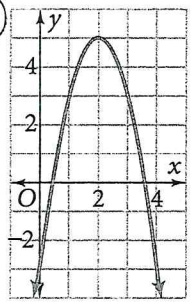
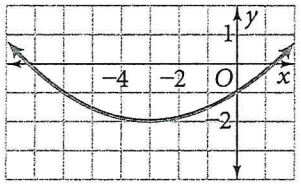
Practice and Problem Solving

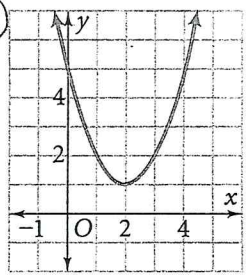
A Practice by Example

Example 1 (page 511)

Identify the vertex of each graph. Tell whether it is a minimum or maximum.

1. 

2. 

3. 

Example 2 (page 511)

Graph each function.

4. $y = -4x^2$
5. $f(x) = 1.5x^2$
6. $y = \frac{2}{3}x^2$
7. $f(x) = -\frac{1}{2}x^2$
8. $y = -\frac{1}{3}x^2$
9. $f(x) = 3x^2$

Example 3 (page 512)

Order each group of quadratic functions from widest to narrowest graph.

10. $y = 3x^2, y = \frac{1}{2}x^2, y = 4x^2$
11. $f(x) = 5x^2, f(x) = \frac{1}{3}x^2, f(x) = x^2$
12. $y = -\frac{1}{2}x^2, y = 5x^2, y = -\frac{1}{4}x^2$
13. $f(x) = -2x^2, f(x) = -\frac{2}{3}x^2, f(x) = -4x^2$

Example 4 (page 512)

Graph each function.

14. $f(x) = x^2 + 2$
15. $y = x^2 - 3$
16. $y = \frac{1}{2}x^2 + 4$
17. $f(x) = -x^2 - 1$
18. $y = -2x^2 + 2$
19. $f(x) = 4x^2 - 7$

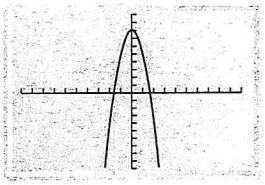
Example 5 (page 513)

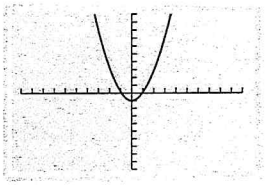
20. A gull drops a clam shell onto some rocks from a height of 50 ft. The function $h = -16t^2 + 50$ gives the shell's approximate height h in feet after t seconds. Graph the function.

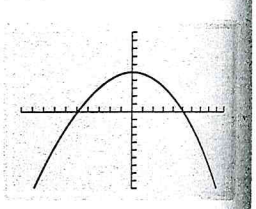
B Apply Your Skills

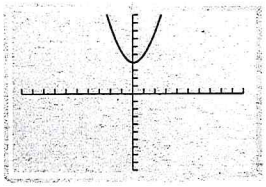
Match each graph with its function.

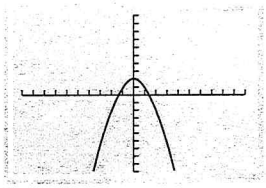
A. $f(x) = x^2 - 1$
B. $f(x) = x^2 + 4$
C. $f(x) = -x^2 + 2$
D. $f(x) = 3x^2 - 5$
E. $f(x) = -3x^2 + 8$
F. $f(x) = -0.2x^2 + 5$

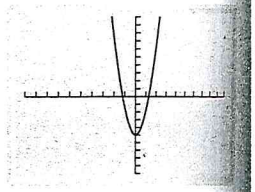
21. 

22. 

23. 

24. 

25. 

26. 

Writing **Without graphing, describe how each graph differs from the graph of $y = x^2$.**

27. $y = 2x^2$
28. $y = -x^2$
29. $y = 1.5x^2$
30. $y = \frac{1}{2}x^2$