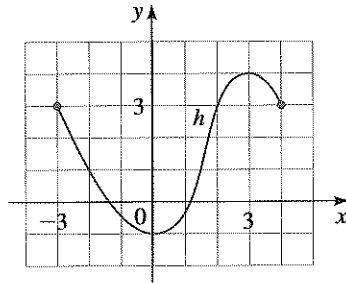
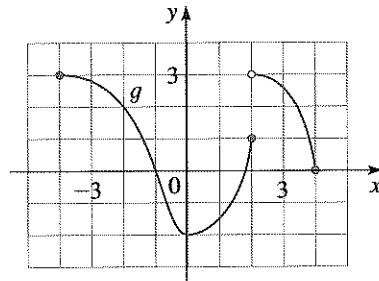


4.2 EXERCISES

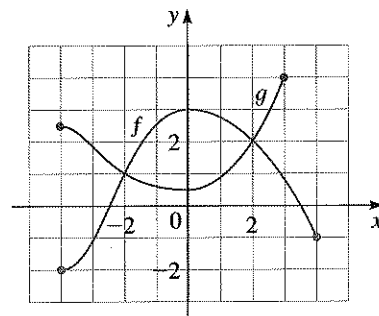
1. The graph of a function h is given.
 (a) State the values of $h(-2)$, $h(0)$, $h(2)$, and $h(3)$.
 (b) State the domain and range of h .



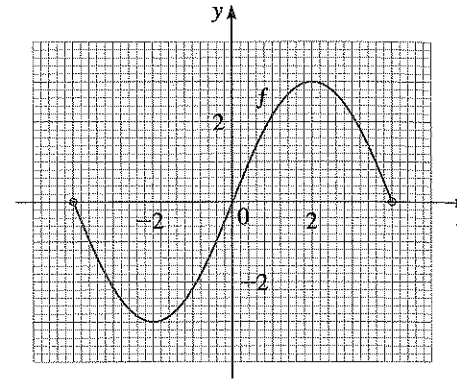
2. The graph of a function g is given.
 (a) State the values of $g(-4)$, $g(-2)$, $g(0)$, $g(2)$, and $g(4)$.
 (b) State the domain and range of g .



3. Graphs of the functions f and g are given.
 (a) Which is larger, $f(0)$ or $g(0)$?
 (b) Which is larger, $f(-3)$ or $g(-3)$?
 (c) For which values of x is $f(x) = g(x)$?

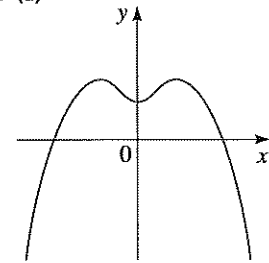


4. The graph of a function f is given.
 (a) Estimate $f(0.5)$ to the nearest tenth.
 (b) Estimate $f(3)$ to the nearest tenth.
 (c) Find all the numbers x in the domain of f so that $f(x) = 1$.

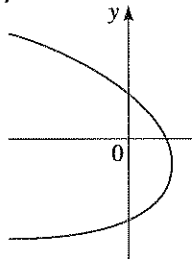


5-6 ■ Determine whether the curve is the graph of a function of x .

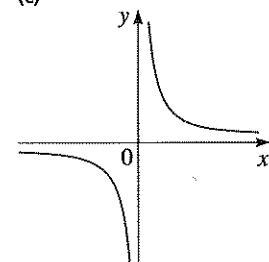
5. (a)



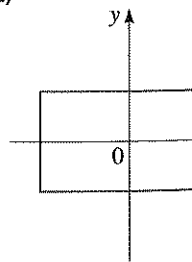
(b)

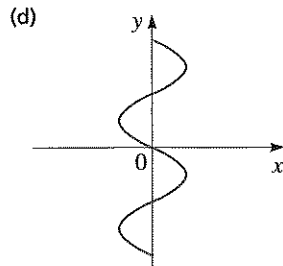
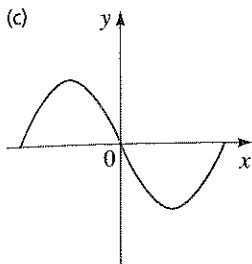
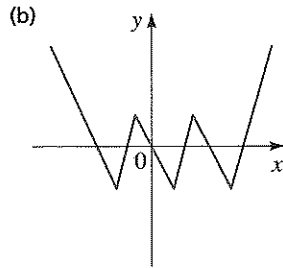
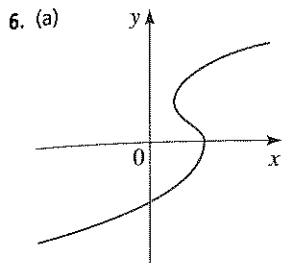


(c)

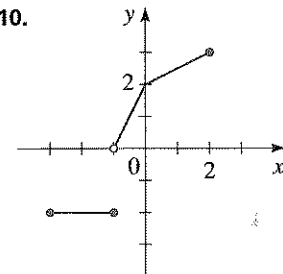
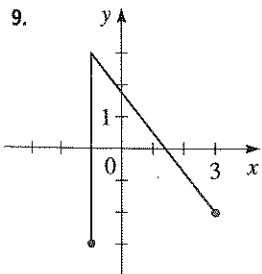
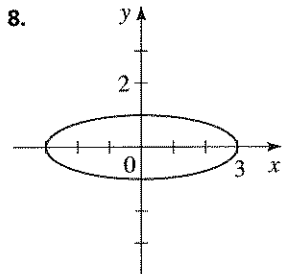
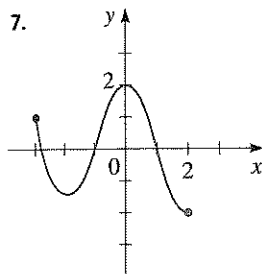


(d)





7-10 ■ Determine whether the curve is the graph of a function x . If it is, state the domain and range of the function.



11-18 ■ A function f is given.

- (a) Sketch the graph of f .
 (b) Find the domain of f .

11. $f(x) = 1 - x$

12. $f(x) = \frac{1}{2}(x + 1)$

13. $f(x) = x^2 - 4x$

14. $f(x) = x^2 - 4x + 4$

15. $f(x) = \sqrt{9 - x}$

16. $f(x) = \sqrt{2x + 6}$

17. $f(x) = \sqrt{16 - x^2}$

18. $f(x) = -\sqrt{25 - x^2}$

19-40 ■ Sketch the graph of the function.

19. $f(x) = 3$

20. $f(x) = -5$

21. $f(x) = 2x + 3$

22. $f(x) = 6 - 3x$

23. $f(x) = -x + 4, -1 \leq x \leq 4$

24. $f(x) = \frac{x + 3}{2}, -2 \leq x \leq 2$

25. $f(x) = -x^2$

26. $f(x) = x^2 - 4$

27. $g(x) = x^3 - 8$

28. $g(x) = 4x^2 - x^4$

29. $g(x) = \sqrt{-x}$

30. $g(x) = \sqrt{6 - 2x}$

31. $F(x) = \frac{1}{x}$

32. $F(x) = \frac{2}{x + 4}$

33. $H(x) = |2x|$

34. $H(x) = |x + 1|$

35. $G(x) = |x| + x$

36. $G(x) = |x| - x$

37. $f(x) = |2x - 2|$

38. $f(x) = \frac{x}{|x|}$

39. $g(x) = \frac{2}{x^2}$

40. $g(x) = \frac{|x|}{x^2}$

41-52 ■ Determine whether the equation defines y as a function of x . (See Example 9.)

41. $x^2 + 2y = 4$

42. $3x + 7y = 21$

43. $x = y^2$

44. $x^2 + (y - 1)^2 = 4$

45. $x + y^2 = 9$

46. $x^2 + y = 9$

47. $x^2y + y = 1$

48. $\sqrt{x} + y = 12$

49. $2|x| + y = 0$

50. $2x + |y| = 0$

51. $x = y^3$

52. $x = y^4$

53-58 ■ A family of functions is given. In parts (a) and (b) graph all the given members of the family in the viewing rectangle indicated. In part (c) state the conclusions you can make from your graphs.

53. $f(x) = x^2 + c$

(a) $c = 0, 2, 4, 6; [-5, 5]$ by $[-10, 10]$

(b) $c = 0, -2, -4, -6; [-5, 5]$ by $[-10, 10]$

(c) How does the value of c affect the graph?