

SECTION 4.1



EXERCISES

13–20 ■ Evaluate the function at the indicated values.

13. $f(x) = 2x + 1$;

$f(1), f(-2), f(\frac{1}{2}), f(a), f(-a), f(a + b)$

14. $f(x) = x^2 + 2x$;

$f(0), f(3), f(-3), f(a), f(-x), f(\frac{1}{a})$

15. $g(x) = \frac{1-x}{1+x}$;

$g(2), g(-2), g(\frac{1}{2}), g(a), g(a-1), g(-1)$

16. $h(t) = t + \frac{1}{t}$;

$h(1), h(-1), h(2), h(\frac{1}{2}), h(x), h(\frac{1}{x})$

17. $f(x) = 2x^2 + 3x - 4$;

$f(0), f(2), f(-2), f(\sqrt{2}), f(x+1), f(-x)$

18. $f(x) = x^3 - 4x^2$;

$f(0), f(1), f(-1), f(\frac{3}{2}), f(\frac{x}{2}), f(x^2)$

19. $f(x) = 2|x - 1|$;

$f(-2), f(0), f(\frac{1}{2}), f(2), f(x+1), f(x^2+2)$

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

$f(-2), f(-1), f(0), f(5), f(x^2), f(\frac{1}{x})$

21–24 ■ Evaluate the piecewise defined function at the indicated values.

21. $f(x) = \begin{cases} x^2 & \text{if } x < 0 \\ x + 1 & \text{if } x \geq 0 \end{cases}$

$f(-2), f(-1), f(0), f(1), f(2)$

22. $f(x) = \begin{cases} 5 & \text{if } x \leq 2 \\ 2x - 3 & \text{if } x > 2 \end{cases}$

$f(-3), f(0), f(2), f(3), f(5)$

23. $f(x) = \begin{cases} x^2 + 2x & \text{if } x \leq -1 \\ x & \text{if } x > -1 \end{cases}$

$f(-4), f(-\frac{3}{2}), f(-1), f(0), f(1)$

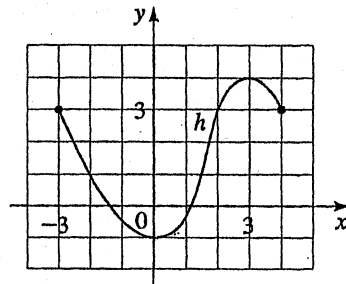
SECTION 4.2



EXERCISES

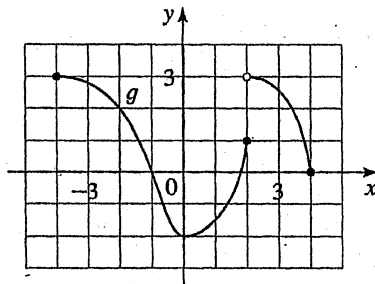
1. The graph of a function h is given.

- (a) State the values of $h(-2), h(0), h(2),$ and $h(3)$.
- (b) State the domain and range of h .



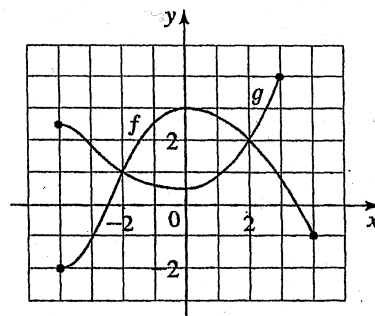
2. The graph of a function g is given.

- (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 $f(x) = 1$.

