

15. Referring to Example 2, construct a table for $s \circ r$.
16. Referring to Example 2, construct a table for $r \circ r$.
17. Referring to Example 2, construct a table for $r \circ (r \circ s)$.
18. Suppose that the domain of f is $[-1, 3]$ and that $g(x) = 2x - 1$. What is the domain of $f \circ g$?
19. Suppose that the domain of f is $[-1, 4]$ and that $g(x) = x^2$. What is the domain of $f \circ g$?
20. Suppose that the domain of h is $[0, \infty)$ and that $k(x) = 1/(x + 1)$. What can be said about the domain of $k \circ h$?
21. Suppose that the domain of F is $[-10, -8]$ and that $G(x) = x^3 + 1$. What can be said about the domain of $F \circ G$?
22. Tables A and B represent two functions.

x	
1	3
2	5
3	8
4	8
5	7
6	2

Table A.

x	$(f \circ g)(x)$
1	2
2	7
4	7
5	5
6	5

Table B.

- a. If Table A represents the function f and Table B represents the function $f \circ g$, construct a table to represent g .
 - b. If Table A represents g and Table B represents function $f \circ g$, construct a table to represent f .
23. The accompanying table defines a function f .

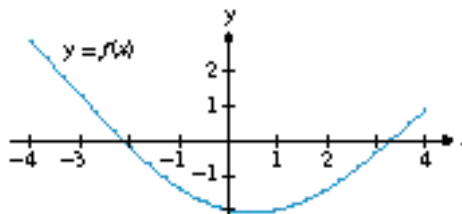
x	$f(x)$
-2	3
-1	1
0	0
1	-6
2	-5
3	3

Table for Exercise 23.

- a. Let $g(x) = 2x - 1$ for all real numbers x . Give the domain and range of $f \circ g$. Also give the domain and range of $g \circ f$.
- b. Let $h(x) = \sqrt{x + 1}$ for all real numbers $x \geq -1$. Give the domain and range of $f \circ h$. Also give the domain and range of $h \circ f$.

24. Let $f(x) = x^2 - 2x$.
 - a. On the same set of axes plot $y = f(x)$ and $y = f(x + 2)$. Carefully explain how one graph can be obtained from the other.
 - b. On the same set of axes plot $y = f(x)$ and $y = f(x) + 2$. Carefully explain how one graph can be obtained from the other.
25. Let $f(x) = x2^x$.
 - a. Use a calculator or computer to plot $y = f(x)$ and $y = f(-x)$ on the same set of axes. Carefully explain how one graph can be obtained from the other.
 - b. Use a calculator or computer to plot $y = f(x)$ and $y = -f(x)$ on the same set of axes. Carefully explain how one graph can be obtained from the other.
26. Let $f(x) = \sqrt{x^2 + 1}$ and let $\ell(x) = 2x + 1$.
 - a. Use a calculator or computer to plot $y = f(x)$ and $y = f(\ell(x))$ on the same set of axes. Carefully explain how one graph can be obtained from the other.
 - b. Use a calculator or computer to plot $y = f(x)$ and $y = \ell(f(x))$ on the same set of axes. Carefully explain how one graph can be obtained from the other.
27. Let $f(x) = \sin x$ and let $\ell(x) = -2x + \pi$.
 - a. Use a calculator or computer to plot $y = f(x)$ and $y = f(\ell(x))$ on the same set of axes. Carefully explain how one graph can be obtained from the other.
 - b. Use a calculator or computer to plot $y = f(x)$ and $y = \ell(f(x))$ on the same set of axes. Carefully explain how one graph can be obtained from the other.

Exercises 28–33: The graph of a function f is shown. Sketch the graph of $y = g(x)$.



28. $g(x) = f(x + 1)$
29. $g(x) = f\left(\frac{x}{2}\right)$
30. $g(x) = -f(-x)$
31. $g(x) = |f(x)|$
32. $g(x) = f(|x|)$
33. $g(x) = \frac{|f(x)|}{f(x)}$