

Chapter 4 Function notation

Given $f(x) = x^2 + 2x - 1$, $g(x) = \frac{-2}{x+3}$

1. $f(2)$
2. $f(-1)$
3. $g(5)$
4. $g(-1)$
5. $f(g(-5))$
6. $g(f(3))$
7. $g(f(x))$

Given $f(x) = 3x^2 + 1$ $g(x) = 2x - 2$ $h(x) = |x - 3|$

8. $f(2)$
9. $f(-1)$
10. $g(5)$
11. $g(-1)$
12. $f(g(-5))$
13. $g(f(1))$
14. $f(g(x))$
15. $h(-4)$
16. $f(h(-1))$
17. $g(g(x))$
18. $f(x) + g(x)$

Section 1.4 Exercises

Given each pair of functions, calculate $f(g(0))$ and $g(f(0))$.

1. $f(x) = 4x + 8$, $g(x) = 7 - x^2$

2. $f(x) = 5x + 7$, $g(x) = 4 - 2x^2$

3. $f(x) = \sqrt{x+4}$, $g(x) = 12 - x^3$

4. $f(x) = \frac{1}{x+2}$, $g(x) = 4x + 3$

Use the table of values to evaluate each expression

5. $f(g(8))$

6. $f(g(5))$

7. $g(f(5))$

8. $g(f(3))$

9. $f(f(4))$

10. $f(f(1))$

11. $g(g(2))$

12. $g(g(6))$

x	$f(x)$	$g(x)$
0	7	9
1	6	5
2	5	6
3	8	2
4	4	1
5	0	8
6	2	7
7	1	3
8	9	4
9	3	0

Use the graphs to evaluate the expressions below.

13. $f(g(3))$

14. $f(g(1))$

15. $g(f(1))$

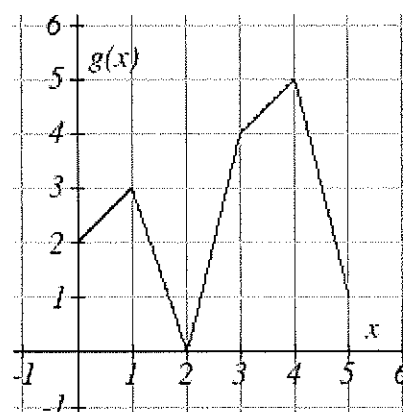
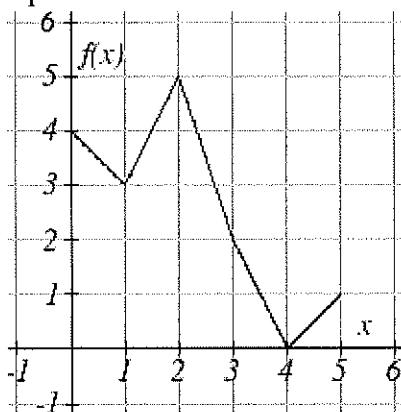
16. $g(f(0))$

17. $f(f(5))$

18. $f(f(4))$

19. $g(g(2))$

20. $g(g(0))$



For each pair of functions, find $f(g(x))$ and $g(f(x))$. Simplify your answers.

21. $f(x) = \frac{1}{x-6}$, $g(x) = \frac{7}{x} + 6$

22. $f(x) = \frac{1}{x-4}$, $g(x) = \frac{2}{x} + 4$

23. $f(x) = x^2 + 1$, $g(x) = \sqrt{x+2}$

24. $f(x) = \sqrt{x} + 2$, $g(x) = x^2 + 3$