

Determine  $(f \circ g)(x)$  and  $(g \circ f)(x)$  for the given functions.

1.  $f(x) = 5x - 1$  and  $g(x) = 3x + 1$
2.  $f(x) = 2x^5$  and  $g(x) = 4x + 1$
3.  $f(x) = 4x + 1$  and  $g(x) = 2x^5 + 5x$
4.  $f(x) = 8x + 12$  and  $g(x) = 3x - 1$
5.  $f(x) = 5x + 3$  and  $g(x) = -x^5 + 4x + 3$
6.  $f(x) = -x^3 + 2$  and  $g(x) = 4x$
7.  $f(x) = \sqrt{x+2}$  and  $g(x) = 8x - 6$

**ANSWERS**

1. a)  $15x + 4$  b)  $15x - 2$
2. a)  $32x^5 + 16x + 2$  b)  $8x^5 + 1$
3. a)  $8x^5 + 20x + 1$  b)  $32x^5 + 36x + 7$
4. a)  $24x + 4$  b)  $24x + 35$
5. a)  $-5x^5 + 20x + 18$  b)  $-25x^5 - 10x + 6$
6. a)  $-64x^3 + 2$  b)  $-4x^3 + 8$
7. a)  $2\sqrt{2x-1}$  b)  $8\sqrt{x+2} - 6$