

Section 6.1: Composite functions

#1-10: Find the following

- a) $(f \circ g)(x)$
- b) the domain of $(f \circ g)(x)$
- c) $(g \circ f)(x)$
- d) the domain of $(g \circ f)(x)$

1) $f(x) = 3x - 6$ $g(x) = 2x + 10$ 2) $f(x) = 4x - 5$ $g(x) = 5x - 7$

3) $f(x) = x^2 + 5$ $g(x) = 3x - 4$ 4) $f(x) = x^2 + 2$ $g(x) = 5x - 1$

5) $f(x) = x - 4$ $g(x) = x^2 + 2x - 1$ 6) $f(x) = x - 3$ $g(x) = x^2 - 4x - 2$

7) $f(x) = \frac{2}{x+4}$ $g(x) = \frac{3}{x-7}$ 8) $f(x) = \frac{1}{x-6}$ $g(x) = \frac{1}{x+1}$

9) $f(x) = \frac{1}{x-3}$ $g(x) = \frac{1}{x}$ 10) $f(x) = \frac{1}{x-5}$ $g(x) = \frac{1}{x}$

#11-14: Show that (This will be an important skill in section 6.2.)

- a) $(f \circ g)(x) = x$
- b) $(g \circ f)(x) = x$

11) $f(x) = 7x + 1$ $g(x) = \frac{x-1}{7}$ 12) $f(x) = 3 - 4x$ $g(x) = \frac{3-x}{4}$

13) $f(x) = \frac{x-5}{2}$ $g(x) = 2x + 5$ 14) $f(x) = \frac{1}{x}$ $g(x) = \frac{1}{x}$