

# 1-6 QUIZ

## *Function Operations and Composition of Functions*

Find  $(f + g)(x)$ ,  $(f - g)(x)$ ,  $(f \cdot g)(x)$ , and  $\left(\frac{f}{g}\right)(x)$  for each  $f(x)$  and  $g(x)$ . State the domain of each new function.

1.  $f(x) = 2x^2 + 8$  and  $g(x) = 5x - 6$

2.  $f(x) = x^3$  and  $g(x) = \sqrt{x + 1}$

For each pair of functions, find  $[f \circ g](x)$ ,  $[g \circ f](x)$ , and  $[f \circ g](3)$ .

3.  $f(x) = x + 5$  and  $g(x) = x - 3$

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

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

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

**Find  $f \circ g$ .**

$$7. f(x) = \sqrt{x - 2}$$

$$g(x) = 3x$$

$$8. f(x) = \frac{1}{x - 8}$$

$$g(x) = x^2 + 5$$

**DECOMPOSITION of FXNS.**

Find two functions  $f$  and  $g$  such that  $h(x) = [f \circ g](x)$ . Neither function may be the identity function  $f(x) = x$ .

$$9. h(x) = \sqrt{2x - 6} - 1$$

$$10. h(x) = \frac{1}{3x + 3}$$

NAME \_\_\_\_\_ DATE \_\_\_\_\_ PERIOD \_\_\_\_\_