

Name: \_\_\_\_\_

## Combinations and Composition of Functions

1) Given  $f(x) = \frac{15}{x-5}$  and  $g(x) = \frac{8}{x+9}$  find each of the following.

1)  $(f + g)_{(x)}$

2)  $(f - g)_{(x)}$

3)  $(f \bullet g)_{(x)}$

4)  $\left(\frac{f}{g}\right)_{(x)}$

2) Let  $f(x) = 2x-3$  and  $g(x) = x^2 - x - 6$ . Find

1)  $(f+g)(x)$

2)  $(f-g)(x)$

3)  $(fg)(x)$

4)  $(f / g)(x)$

3) Let  $f(x) = \sqrt{2x-3}$  and  $g(x) = \frac{1}{x}$ . Find the following functions and their domains

1)  $f + g$

2)  $f - g$

3)  $fg$

4)  $f / g$

4) Find  $(f \circ g)(x)$  and  $(g \circ f)(x)$  if:

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

(2)  $f(x) = x^2$  and  $g(x) = 4 - x$

(3)  $f(x) = 1/x$  and  $g(x) = x - 4$

5) Given  $f(x) = \frac{15}{x-5}$  and  $g(x) = \frac{8}{x+9}$  find each of the following.

5)  $(f + g)_{(x)}$

6)  $(f - g)_{(x)}$

7)  $(f \bullet g)_{(x)}$

8)  $\left(\frac{f}{g}\right)_{(x)}$