

**Secondary Math III**  
**Operations with Functions**  
Assignment 8.1

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

Let  $f(x) = x^2 - 9$  and  $g(x) = 4x + 1$ . Find the new function and state the domain.

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

Domain:

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

Domain:

3.  $(g - f)(x)$

Domain:

4.  $(f \cdot g)(x)$

Domain:

5.  $(g \cdot g)(x)$

Domain:

6.  $\left(\frac{f}{g}\right)(x)$

Domain:

7.  $\left(\frac{g}{f}\right)(x)$

Domain:

8.  $(g \circ f)(x)$

Domain:

9.  $(f \circ g)(x)$

Domain:

Let  $f(x) = \sqrt{x+3}$  and  $g(x) = x^2 + 2$ . Find the indicated value.

10.  $f(g(2))$

11.  $g(f(2))$

12.  $(f \circ g)(7)$

13.  $(g \circ f)(7)$

14.  $g(g(1))$

15.  $f(f(6))$

16.  $(f + g)(5)$

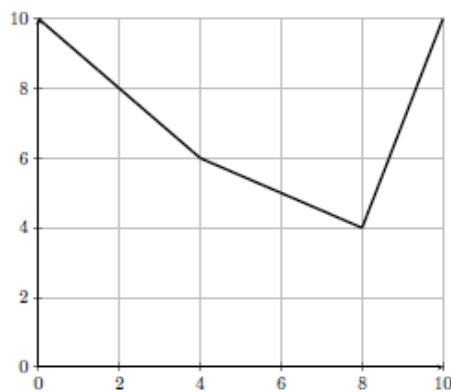
17.  $(f - g)(-2)$

18.  $\left(\frac{g}{f}\right)(1)$

Two functions  $f$  and  $g$  are given by their graphs below. Find the following from the graphs.



The graph for  $f$



The graph for  $g$

19.  $(f + g)(4) =$

20.  $(f - g)(0) =$

21.  $(g - f)(8) =$

22.  $(f \cdot g)(6) =$

23.  $\left(\frac{f}{g}\right)(0) =$

24.  $\left(\frac{g}{f}\right)(4) =$

25.  $(f \circ g)(0) =$

26.  $(g \circ f)(2) =$

27.  $(f \circ f)(4) =$

28.  $(g \circ g)(4) =$

29.  $f(g(8)) =$

30.  $g(f(0)) =$