

Day 1: Function Notation

Date _____ Period _____

Function Notation Review

1) Use the following functions for the problems below.

$$f(x) = 7x - 3$$

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

$$h(x) = \frac{2x + 1}{x - 2}$$

$$k(x) = \sqrt{x + 3}$$

2) $f(2)$

3) $g(4)$

4) $k(6)$

5) $h(5)$

6) $f(0)$

7) $g(-6)$

8) $k(-28)$

9) $h(0)$

10) $f(-3)$

11) $h(7)$

12) $g(-2)$

13) $k(25)$

Other Function Operations

14) Another use for function notation is that we can easily show what operations we want to perform on functions.

Addition: $f(x) + g(x)$ which could also look like $(f + g)(x)$

Subtraction: $f(x) - g(x)$ which could also look like $(f - g)(x)$

Multiplication: $f(x) \cdot g(x)$ which could also look like $(f \cdot g)(x)$

Let $f(x) = x - 3$ and $g(x) = 3x - 5$. Perform the following operations.

15) $(f + g)(x)$

16) $(f - g)(x)$

17) $(g - f)(x)$

18) $(g \cdot f)(x)$

Let $f(x) = 2x + 4$ and $g(x) = x - 1$. Perform the indicated operation.

19) $(f - g)(x)$

20) $g(x) - f(x)$

21) $g(x) + f(x)$

22) $(f \cdot g)(x)$

23) $(f - g)(2)$

24) $(g + f)(3)$

25) $(f \cdot g)(2)$

26) $(f \cdot g)(-4)$

Compositions of Functions

27) We can compose two functions into one function. We do this by replacing the variable of one function with the second function.

$$(f \circ g)(x) = f(g(x))$$

This means that we plug _____ in for every x in the _____ equation.

The process is the same if the order is reversed. For example:

$$(g \circ f)(x) = g(f(x))$$

This means that we plug _____ in for every x in the _____ equation.

Let $f(x) = 3x - 7$ and $g(x) = 2x + 4$. Find the following:

28) $(f \circ g)(x)$

29) $(g \circ f)(x)$

Let $g(x) = 2x + 7$ and $h(x) = -3x + 1$. Find the following:

30) $g(h(x))$

31) $(h \circ g)(x)$

32) $g(h(4))$

33) $(h \circ g)(2)$

Let $f(x) = x + 2$ and $g(x) = x^2 - 4$. Find the following:

34) $(f \circ f)(x)$

35) $g(g(x))$

36) $(f \circ g)(x)$

37) $g(f(x))$

38) $(f \circ g)(1)$

39) $g(f(-2))$