Functions Worksheet

Domain Range and Function Notation

1. Find the domain

a. $f(x) = \dfrac{x-4}{x-2}$ b. $g(x) = \dfrac{x^2+5}{x+1}$ c. $h(x) = \dfrac{x}{x^2-9}$

2. Let $f(x) = 2x - 1$ and $g(x) = x^2 - 4$ find

a. $f(0)$ b. $f(1)$ c. $f(-1)$

d. $f(a)$ e. $g(0)$ f. $g(-2)$

g. $g(3)$ h. $g(t)$ i. $f(a+5)$

j. $f(x+h)$ k. $g(a-1)$ l. $g(f(x))$

3. If $f(x) = 3x - 5$, find $\dfrac{f(x) - f(a)}{x - a}$

4. If $f(x) = 3x - 5$, find $\dfrac{f(x+h) - f(x)}{h}$

Algebra with Functions and Composition

1. If $f(x) = 4x^2 + 3x + 2$ and $g(x) = 2x^2 - 5x - 6$ find *f+g, f-g, fg,* and *f/g*

2. Let $f(x) = 4x - 3$, $g(x) = 4x^2 - 7x + 3$ and $h(x) = x - 1$.

   Find $(f+g)(2)$, $(fh)(-1)$, $(fg)(0)$ and $(g/f)(5)$

3. Let $f(x) = 4x - 3$, $g(x) = 4x^2 - 7x + 3$ and $h(x) = x - 1$.

   Find $f+g$, fh, fg, and g/f.

4. Let $f(x) = 2x - 1$ and $g(x) = x^2 - 4$ find

a. $(f \circ g)(x)$ b. $(g \circ f)(x)$ c. $(f \circ g)(2)$ d. $(g \circ f)(2)$

5. If $f(x) = x + 5$ and $g(x) = x^2 - 2x$ find $(f \circ g)(x)$ and $(g \circ f)(x)$

Inverse Functions

1. Find the inverse of $f(x) = 2x - 3$

2. Graph $y = x^2 - 2$, find its inverse and graph it.

3. Find the inverse of $g(x) = \dfrac{x-4}{x-2}$