

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

Date: \_\_\_\_\_

**Learning Goal 1.1**

Understanding new ideas about functions and applying that to previously knowledge.

**More Questions**

1. Find the domain of the following functions.

a.  $f(x) = \frac{2x - 1}{x^2 + 1}$

b.  $g(x) = \frac{x^2 + 3x + 2}{\sqrt{3x^2 - 3}}$

c.  $h(x) = \sqrt{x^2 - 1} + \sqrt{4 - x}$

2. If
- $f(x)$
- and
- $g(x)$
- are defined as follows, find the composition of functions.

$f(x) = x^2 - 1$

$g(x) = 2x$

a.  $g(g(5))$

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

c.  $f(g(x))$

d.  $(f \circ f)(x)$

3. If
- $f(x)$
- and
- $g(x)$
- are defined as follows, find the composition of functions.

$f(x) = \sqrt{x}$

$g(x) = \sqrt[3]{1 - x}$

a.  $g(g(x))$

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

c.  $f(g(x))$

d.  $(f \circ f)(x)$

4. Sketch the functions. State the range.

a.  $f(x) = \begin{cases} x^2 - 5x, & x \leq 1 \\ x + 4, & x > 1 \end{cases}$

b.  $g(x) = \begin{cases} x + 3, & x < -2 \\ -|x| + 5, & -2 \leq x < 3 \\ x - 4, & x \geq 3 \end{cases}$