

Name: _____

Date: _____

THE DOMAIN AND RANGE OF A FUNCTION

Ultimately, all functions do is convert inputs into outputs. So, each function has two sets associated with it. Those things that serve as inputs and those things that serve as outputs. These sets are given names.

all x values

THE DOMAIN AND RANGE OF A FUNCTION

1. The **domain** of a function is the set of **all inputs (x values)** for which the function rule can give an output.
2. The **range** of a function is the set of **all outputs (y values)** for which there is an input that results in them.

Exercise #1: Consider the function $y = f(x)$ shown on the graph below.

(a) Evaluate each of the following:

$f(-3) = 1$ $f(1) = -3$ $f(3) = 5$
 $f(x) = y$ $f(x) = y$ $f(x) = y$

(b) Can the function rule, given by the graph, give you a value when $x = 5$? If so, what is it? If not, why not?

There is no graph at $x = 5$

(c) Is $x = 5$ in the domain of the function?

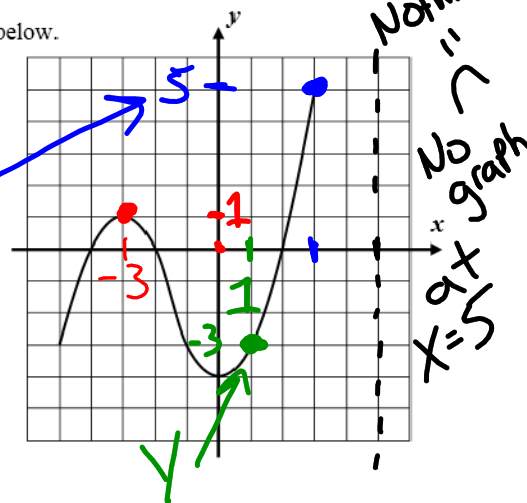
$x = 5$ is not in the domain

(d) Give two other values of x that are not in the domain of the function.

$x = -6$ is not in the domain
 $x = 3.1$ is not in the domain

(e) Circle the following y -values that are in the range of the function? Show evidence on your graph.

- | | | |
|---------|----------|----------|
| $y = 0$ | $y = 6$ | $y = -1$ |
| $y = 3$ | $y = -5$ | $y = 4$ |



(f) Write the domain and range of this function using a single inequality.

DOMAIN

RANGE