

Name: _____

Date: _____

INTRODUCTION TO FUNCTIONS

The concept of the **function** ranks near the top of the list in terms of important Algebra concepts. Almost all of higher-level mathematical modeling is based on the concept.

THE DEFINITION OF A FUNCTION

A **function** is a clearly defined **rule** that converts an input into **exactly one** output. These rules often come in the form of: (1) equations, (2) graphs, (3) tables, and (4) verbal descriptions.

Exercise #1: Consider the function rule multiply the input by two and then subtract one to get the output.

(a) Fill in the table below for inputs and outputs. Inputs are often designated by x and outputs by y .

Input x	Calculation <i>rule</i>	Output y
0	$2x - 1 = 2(0) - 1$	-1
1	$2(1) - 1 = 1$	1
2	$2(2) - 1 =$	3
3	$2(3) - 1 =$	5

(c) Graph the function rule on the graph paper shown below. Use your table in (a) to help.

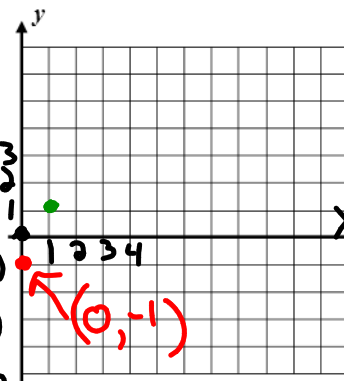


Table of Values

x	y
0	-1
1	1
2	3
3	5

(b) Write an equation that gives this rule in symbolic form.

$2x - 1 = y$

(0,0) origin

(0,-1)

Give This A Try: In the function rule from #1, what input would be needed to produce an output of 17? Why is it harder to find an input when you have an output than finding an output when you have an input?

Here comes another. Exercise #3: A function rule takes an input, a , and converts it into an output, b , by increasing one half of the input by 10. Determine the output for this rule when the input is 50 and then write an equation for the rule.