Entry #: _____

Lesson 2.1 & 2.2: What is a Function? & Graphs of Functions

What is a Function?

A _____ f is a rule that assigns each _____ x in a set A exactly one element, called $f(x)$, in a set B.

In other words each **input** of a function has exactly one _____ **output**.

The Function "Machine": Arrow Diagrams:

Evaluating a Function

In functions the _____ , x acts like a placeholder.

Examples: Evaluate the following function for the given inputs.

$f(x) = 2x^2 + 3x - 1$

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

Four Ways to Represent a Function

1. Verbal
2. Visual (Graph)
3. Algebraic
4. Numerical (Table of Values)

Example:

Let $F(c)$ be the Fahrenheit temperature corresponding to the Celsius temperature C.

The verbal description is given below, find the algebraic, visual, and numerical descriptions.

Verbal: "To convert Celsius to Fahrenheit, multiply the Celsius temperature by $\frac{9}{5}$ and then add 32."	Algebraic:
Visual:	Numerical:

The Vertical Line Test

To test if whether or not curves of graphs are _____ , you can use the vertical line test.

A curve in the coordinate plane is the graph of a function if and only if no _____ intersects the curve more than once.

Examples: