

Lesson 3.2.1: All About Functions

Targets:

1. I understand how to identify a function and how to evaluate them.
2. I understand the difference between a correspondence and a function.

Warm Up:

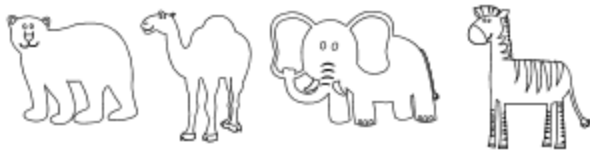
Go to Khan Academy and work on the activity called "Evaluating Functions."

You can find it by going to my Pre-Algebra page and going to Unit 11 - Lesson 4 - Activity 2.

Make sure you get 5 right in a row before moving on from here.

Practice 1:

Match each picture to the correct word by drawing an arrow from the word to the picture.



Elephant
Camel
Polar Bear
Zebra

Are the images a function of the words? Explain your answer.

Vocab:

Read through the following descriptions of a function.

Function: A function is a correspondence between two sets, X and Y , in which each element of X is matched to one and only one element of Y . The set X is called the **domain** of the function.

The notation $f: X \rightarrow Y$ is used to name the function and describes both X and Y . If x is an element in the domain X of a function $f: X \rightarrow Y$, then x is matched to an element of Y called $f(x)$. We say $f(x)$ is the value in Y that denotes the output or image of f corresponding to the input x .

The range (or image) of a function $f: X \rightarrow Y$ is the subset of Y , denoted $f(X)$, defined by the following property: y is an element of $f(X)$ if and only if there is an x in X such that $f(x)=y$.

Practice 2

Define the situation in Practice 1 using function notation. State the domain and the range.

Practice 3

Is the assignment of students to their GPA an example of a function? If yes, define it using function notation, and state the domain and the range.

Practice 4

Go to Khan Academy and work on the activity called “Recognizing Functions.” You can find it by going to my Pre-Algebra page and going to Unit 11 - Lesson 5 - Activity 1. Make sure you get 5 right in a row before moving on from here.

Practice 5

Define f to assign each student at your school a unique ID number.

$f: \{\text{students in your school}\} \rightarrow \{\text{whole numbers}\}$

1. Assign each student a unique ID number
 - a. Is this an example of a function? Use the definition to explain why or why not.
 - b. Suppose $f(\text{Hilda})=350123$. What does that mean?
 - c. Write your name and student ID number using function notation.
2. Let g assign each student at your school to a grade level.
 - a. Is this an example of a function? Explain your reasoning.
 - b. Express this relationship using function notation and state the domain and the range.

Exit Ticket

Which of the following are examples of a function? Justify your answers.

- a. The assignment of the members of a football team to jersey numbers.
- b. The assignment of U.S. citizens to Social Security Numbers.
- c. The assignment of students to locker numbers.
- d. The assignment of the residents of a house to the street addresses.
- e. The assignment of zip codes to residences.
- f. The assignment of residences to zip codes.