

Name: _____

Math 7.2, Period _____

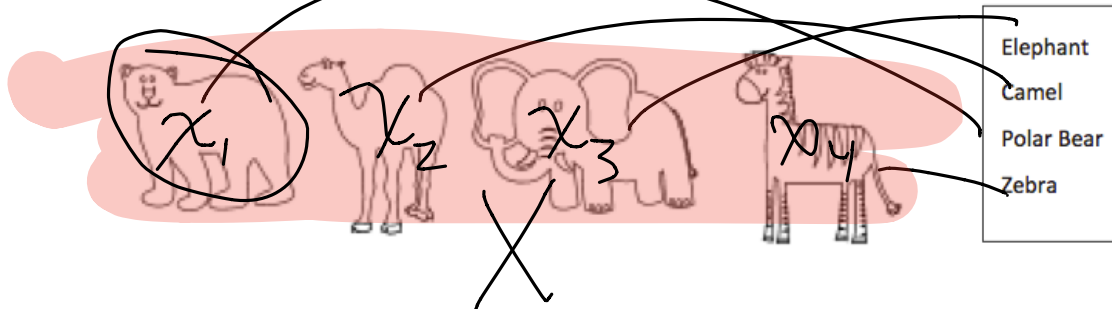
Mr. Rogove

Date: _____

LEARNING OBJECTIVE: We will use formal function notation and define domain and range of functions. (Lesson 95)

ACTIVATING PRIOR KNOWLEDGE:

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



CONCEPT DEVELOPMENT:

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 .

Capital letters
matter.

The set X is called the **domain** of the function.

$\{X\}$ contains x elements

Function Notation: $f: X \rightarrow Y$ is used to name the function that 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 $f(x)$.

f is a function that maps elements of X to elements of Y

The **range** of the function 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 $f(x) = y$.

$\{Y\}$ contains y elements
 $f(x)$

Example:

$f: \{\text{animals pictured}\} \rightarrow \{\text{words listed}\}$

Domain:

Picture of bear, zebra, camel, elephant

Range:

$\{\text{bear, zebra, camel, elephant}\}$

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GUIDED PRACTICE:

Steps for Representing and Evaluating Functions

1. Read the relationship carefully. State whether or not this relationship is a function.
2. Create a word sentence that defines the function rule (or write the function rule).
3. Identify the Domain and Range of the Function.

The assignment of students to English teachers

Function Rule:

$$f: \{\text{Students}\} \rightarrow \{\text{ELA teacher}\} \quad f(\text{Jackson}) \rightarrow \text{Jian}$$

Domain:

Names of all students

Range:

Hess, Jian, Morrison, Garcia-Smith, Delaney, Flynn, Rogers

The assignment of people to their ^{bio} moms

Function Rule:

$$f: \{\text{people}\} \rightarrow \{\text{mothers}\}$$

Domain:

Names of all people

Range:

All ^{bio} mothers

$$f(\text{Lucas B}) \rightarrow \text{Monica}$$

$$f: \{\text{students at Graham}\} \rightarrow \{\text{Student ID numbers}\}$$

Description of Function:

The assignment of students to ID #'s

Domain:

Graham students

Range:

Whole numbers

$g: \{\text{name of teachers at Graham}\} \rightarrow \{\text{Models of cars driven}\}$

Description of Function:

g assigns teachers to the cars they drive

Domain:

Teachers

Range:

Model of cars

$f(\text{Mullkey}) \rightarrow \text{Jetta wagon}$

Let $X = \{1, 2, 3, 4\}$ and $Y = \{5, 6, 7, 8, 9\}$

$f: X \rightarrow Y$

$f = \{(1, 7), (2, 5), (3, 6), (4, 7)\}$

Is f a function?

Yes - Each x is assigned to exactly 1 y .

$g: X \rightarrow Y$

$g = \{(1, 5), (2, 6), (1, 8), (2, 9), (3, 7)\}$

Is g a function?

No, a single input has multiple outputs.

g assigns each student at Graham to a grade level.

Function Rule:

$g: \{\text{Student Name}\} \rightarrow \{\text{Grade Level}\}$

Domain:

Students

Range:

$(6, 7, 8)$

$g(\text{Pikithiri}) \rightarrow 7$

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f assigns the color of the kendama to the student who owns it.

Function Rule:

$$f: \{\text{Color}\} \rightarrow \{\text{Student}\}$$

Domain:

Blue can be assigned

Range:

to more than 1 student

NOT a FUNCTION

$f: \{\text{student names}\} \rightarrow \{\text{Birthday}\}$

Written Description:

Domain:

All names

Range:

Month/Day

$$f(\text{Ben Parker}) \rightarrow \text{Aug } 30$$

$g: \{\text{Birthday}\} \rightarrow \{\text{Student names}\}$

Written Description:

Domain:

Range:

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INDEPENDENT PRACTICE:

Illustrative Math: Your Father and the Customers

CLOSURE:

Hand out exit ticket from Lesson 9.

NOTES:

This lesson is from Alg 1 Mod 3, Lesson 9

Homework is problem set from Lesson 9.