Learning Target: I can define a function

Relation: set of inputs and outputs (ordered pairs) 

Function: a relation with one output for each input

Example 1

Determine whether each relation is a function. Explain.

a. (−2, 2), (−1, 2), (0, 2), (1, 0), (2, 0)
b. (4, 0), (8, 7), (6, 4), (4, 3), (5, 2)

Monitoring Progress 1–4

Determine whether the relation is a function. Explain.

1. (−5, 0), (0, 0), (5, 0), (5, 10)
2. (−4, 8), (−1, 2), (2, −4), (5, −10)

Core Concept

Determining whether each graph represents a function. Explain.

Vertical Line Test

A graph represents a function when no vertical line passes through more than one point on the graph.

Example 2

Determine whether each graph represents a function. Explain.

a. Not a Function

b. Function
Determine whether the graph represents a function. Explain.

Find the domain and range of the function represented by the graph.

Example 3

The function \( y = -3x + 12 \) represents the amount \( y \) (in fluid ounces) of juice remaining in a bottle after you take \( x \) gulps.

a. Identify the independent and dependent variables.

b. The domain is 0, 1, 2, 3, and 4. What is the range?

Monitoring Progress 5-8

Core Concept

Example 4

Find the domain and range of the function represented by the graph.

The function \( a = -4b + 14 \) represents the number \( a \) of avocados you have left after making \( b \) batches of guacamole.

a. Identify the independent and dependent variables.

b. The domain is 0, 1, 2, and 3. What is the range?

Monitoring Progress 9-10

Monitoring Progress 11
12. The function \( t = 19m + 65 \) represents the temperature \( t \) (in degrees Fahrenheit) of an oven after preheating for \( m \) minutes.
   a. Identify the independent and dependent variables.

   b. A recipe calls for an oven temperature of 350°F. Describe the domain and range of the function.

Exit Ticket: Make an input-output table for the function \( y = -2x + 3 \) using the inputs -2, 0, 2, 4.