**Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Class: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**M8-U4: Notes #2 – Functions: Rules, Tables, Graphs, & Mapping**

 **Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Vocabulary Warm-up:** define the following.

**Function:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Linear:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Non-linear:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Domain:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Range:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Vertical-line test:** if a vertical line on a graph passes through more than 1 point, it is not a function.

**Example 1:** **Using the Vertical-Line Test:** Determine whether the relation

{(0,-2), (1,-2), (-3, 1), (-2, 0), (-1,-1), (3, 2), (2,-3)} is a function.



 **Try It**

**a. b.**

**Example 2:** **Using a Mapping Diagram:** Determine whether each relation is a function.

{(4, 3), (2,-1), (-3,-3), (2, 4)}



 **Try It**

Use a mapping diagram to determine whether each relation is a function.

**a.** {(3, -2), (8, 1), (9, 2), (3, 3), (-4, 0)} **b.** {(6.5, 0), (7, -1), (6, 2), (2, 6), (5, -1)}

**Example 3:** **Making a Table From a Function Rule**

Make a table for  and evaluate the function to find the range for the domain values of {-2, 0, 2, 4}.

|  |  |  |  |
| --- | --- | --- | --- |
| ***x*** |  | ***y*** |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

**Example 4:** **Graphing Functions**

Make a table of values and graph the function .



**Example 5: Determining solutions**

 **a)** Is the ordered pair (-2, -2) a solution to the function ?

 **b)** Is the ordered pair (-3, 7) a solution to the function ?

**Practice:**

**1.** Determine whether the relation {(0, 2), (1,-1), (-1, 4), (0,-3), (2, 1)} is a function.

**2.** Evaluate the function  to find the range for the domain values of .

**3.** Make a table of values and graph each function.

**a. ** **b. **

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| *x* | *y* |  | *x* | *y* |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

