Name: _____

Notes #2 – Functions: Rules, Tables, Graphs, & Mapping

Vocabulary Warm-up: define the following.

Function: _____

Linear: _____

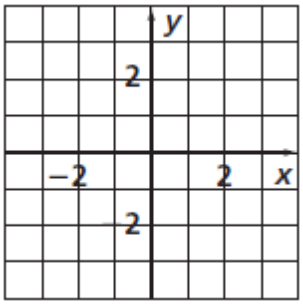
Non-linear: _____

Domain: _____

Range: _____

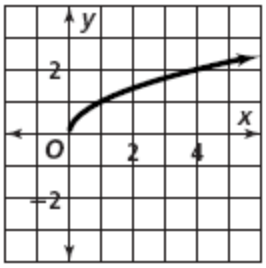
Vertical-line test: if a vertical line on a graph passes through more than 1 point, it is not a function.

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.

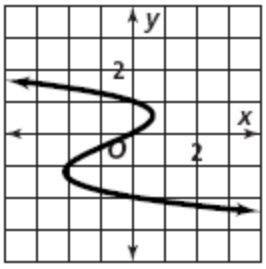


Try It

a.

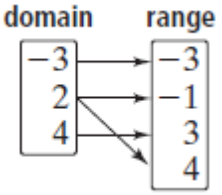


b.



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

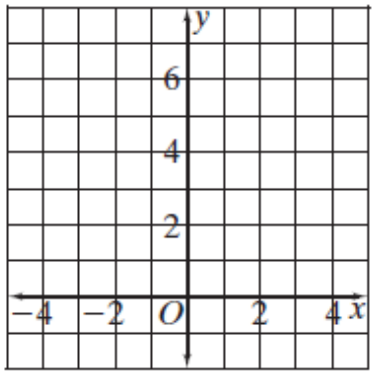
Make a table for $-5x+25=y$ and evaluate the function to find the range for the domain values of {-2, 0, 2, 4}.

x		*y*	

Example 4: Graphing Functions

Make a table of values and graph the function $y = |x| + 2$.

x	$y = \|x\| + 2$	(x, y)
-3	$y = \square + 2 = \square$	$(\square), (\square)$
-1	$y = \square + 2 = \square$	$(\square), (\square)$
0	$y = \square + 2 = \square$	$(\square), (\square)$
1	$y = \square + 2 = \square$	$(\square), (\square)$
3	$y = \square + 2 = \square$	$(\square), (\square)$



Example 5: Determining solutions

a) Is the ordered pair (-2, -2) a solution to the function $y = 3x - 8$?

b) Is the ordered pair (-3, 7) a solution to the function $y = -\frac{2}{3}x + 5$?

Practice:

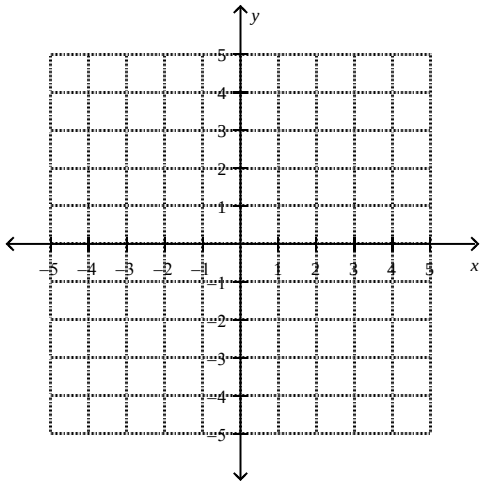
1. Determine whether the relation {(0, 2), (1,-1), (-1, 4), (0,-3), (2, 1)} is a function.

2. Evaluate the function $y = 8 - 3x$ to find the range for the domain values of $\left\{-3, 0, 1\frac{1}{4}, 2.3\right\}$.

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

a. $y = |x| - 1$

x	y



b. $y = x^2 - 1$

x	y