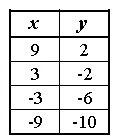
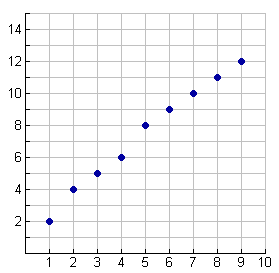
Math 1 2.2 Relations and Functions Unit 2 Day 2

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| **Lesson Vocabulary**  **Relation:** A set of \_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_. It can be written as \_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, or a \_\_\_\_\_\_\_\_\_\_\_\_\_.  **Domain:** The set of \_\_\_\_\_\_\_ values in an ordered pair.  **Range:** The set of \_\_\_\_\_\_\_ values in an ordered pair.  **Function:** A relation in which every x value has only one y value. The X’s can’t \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_!!!!!  **Vertical Line Test:** A way to test if a graph is a function or not.  **Function Notation:** To write a rule in function notation, you use the symbol \_\_\_\_\_\_\_\_ instead of \_\_\_\_\_. It is read “F of X” |

**Identifying Domain and Range**

List the domain and range for each relation.

1. (4, 0) (2, 8) (6, -1) (10, 4)

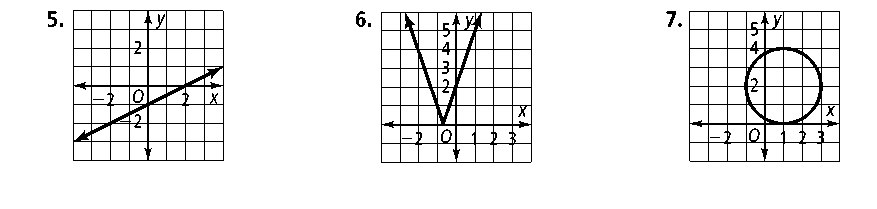
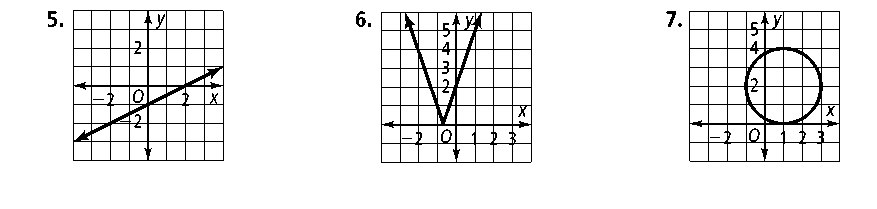
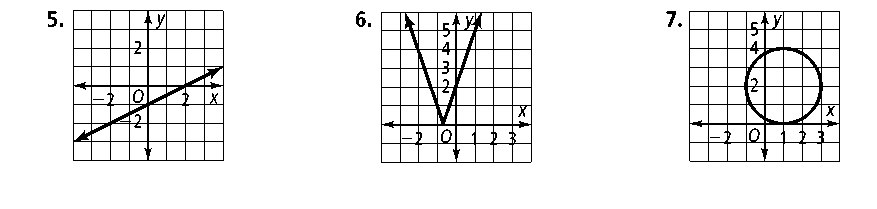
**Identifying Functions by Comparing X-Values**

Are the following relations functions? Compare the x-values by setting up a table.

1. (2, 4) (3, 5) (5, 10) (2, 7)
2. (1, 1) (2, 2) (3, 3) (4, 4) (5, 5)

**Identifying Functions Using the Vertical Line Test**

Drop a straight line through the graph. If it touches it twice, it is not a function!





**Evaluating a Function**

Step 1: Substitute the number inside f( ) into the equation for x.

Step 2: Simplify the equation.

Step 3: Rewrite as a solution set.

Evaluate each of the following.

1. f(x) = 3x + 4 for f(2)
2. f(x) = 3x2 + 4 for f(6)
3. f(x) = -12x + 1 for f(-3)

Evaluate each of the following.

1. f(x) = 3x + 4 for f(x + 1)
2. f(x) = 4(x + 2) for (3x)
3. f(x) = -(x + 3) for (x2 + 2)

**Finding the Range of a Function**

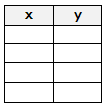
Step 1: Substitute each value of the domain into the equation separately.

Step 2: Simplify each equation separately.

Step 3: Write your solutions in a solution set.

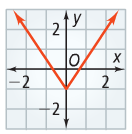
1. The domain of f(x) = 2x + 12 is {-2, -1, 0, 1, 2}. What is the range?
2. The domain of g(x) = –4x – 12 is {1, 3, 5, 7}. What is the range?

**Lesson Check:** Do you know how?

1. Use the relation {(-2, 3), (-1, 4), (0, 5), (1, 6)} to answer the following questions.
   1. Identify the domain and range of the relation.
   2. Represent the relation as a graph and as a table.
   3. Is the relation a function?

Domain:

Range:



1. Is the graph to the left a function? Use the vertical line

test.

1. What is f(2) for the function f(x) = 4x + 1?
2. The domain of f(x) = ½x is {-4, -2, 0}. What is the range?