

Name: _____ Hour: _____ Date: _____

NOTES: Section 2.1 - Represent Relations and Functions

Goals: #1 - I can determine whether a relation is a function.

#2 - I can state the domain and range of a relation.

#3 - I can determine whether a function is linear and evaluate functions for given inputs.

#4 - I can graph a linear function.



Homework: Lesson 2.1 Worksheet

Exploration #1: Work with a partner.

1. What do you know about a *relation*?

2. What do you know about a *function*?

Notes:

A _____ is a mapping, or pairing, of two or more variables.

Examples:

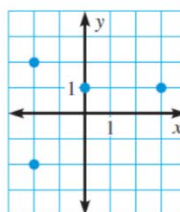
Ordered Pairs

$(-2, 2)$
 $(-2, -2)$
 $(0, 1)$
 $(3, 1)$

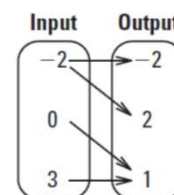
Table

| x | y |
|----|----|
| -2 | 2 |
| -2 | -2 |
| 0 | 1 |
| 3 | 1 |

Graph



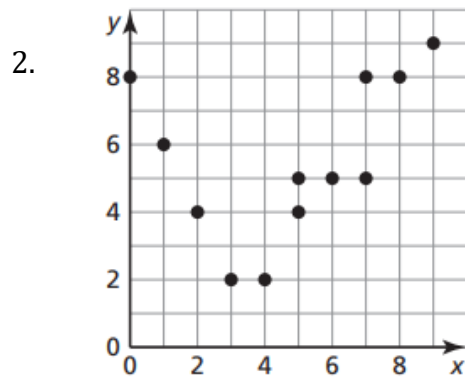
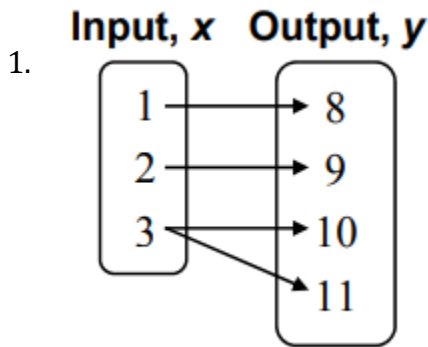
Mapping Diagram



A _____ is a relation where each input gives exactly _____ output.



Example #1: Determine whether each relation represents a function. Explain your reasoning.



D: _____ R: _____

D: _____ R: _____

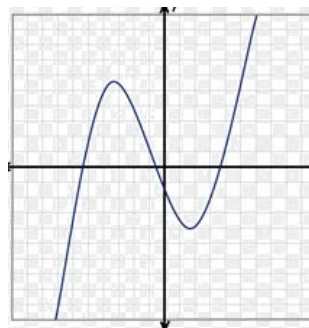
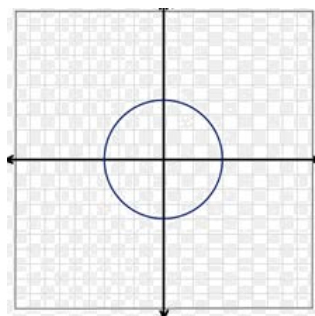
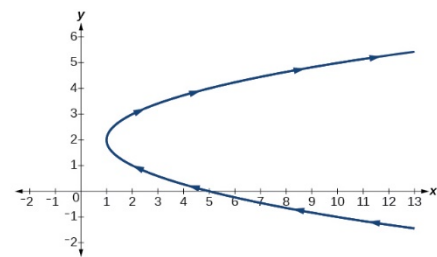
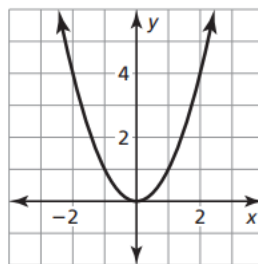
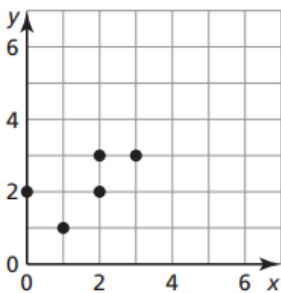
3. $(-2, 0), (-1, 0), (0, 1), (1, 2), (2, 2)$

D: _____ R: _____

Notes:

We can use the _____ to determine if a graph is a function.

Examples:



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Exploration #2: Work with a partner.

1. What do you know about the *domain* of a function?

2. What do you know about the *range* of a function?

Notes:

The _____ of a function is the set of all possible input values.

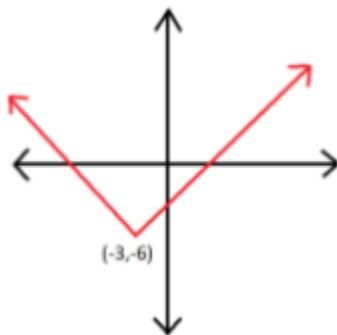
The _____ of a function is the set of all possible output values.



Example #2: Identify the domain and range for each relation in Example #1.

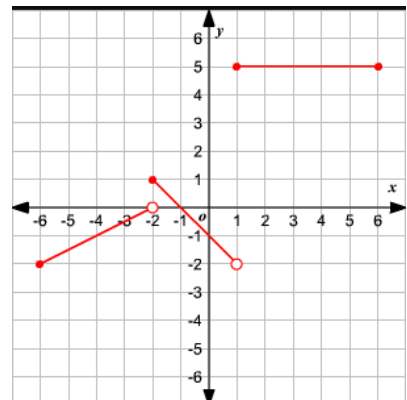
CHALLENGE: Identify the domain and range for the following.

1.



D: _____ R: _____

2.



D: _____ R: _____

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Exploration #3: Work with a partner.

1. What are some characteristics of a *linear function*?

Notes: A _____ is a function that can be written in the form:

Example #3: Tell whether the function is linear. Then evaluate the function for the given value of x .

1. $f(x) = 6x + 10; f(-3)$

2. $f(x) = 2x^2 + 4x - 1; f(-1)$

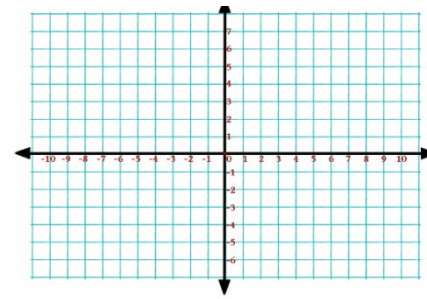
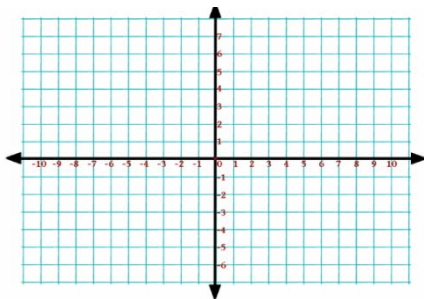
Example #4: Graph the following equations by using a table of values.

1. $y = -2x - 1$

2. $y = -\frac{3}{4}x - 1$

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

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



CHALLENGE: Graph the following equations using any method.

1. $-8 = 16x$

2. $3x + 9y = 6$

