

Name: _____

Period: _____

Defining "Function" ... For Reals

Relationships: Remember that we have been looking at relationships between input values and output values. We can model those relationships with tables, graphs, ordered pairs, equations, and *maps*.

An Example of a Relationship

Ordered Pairs: $\{ (2,5), (-2,3), (5,-2), (-1,-2) \}$

Maps

Table

input	output
2	5
-2	3
5	-2
1	-2

Graph

The really real definition of a function is:

A **function** is a relationship between a set of inputs and outputs. In a function, *there is exactly one output for each input.*

Think about this addition to the definition that we had before and circle the relationships that are **functions** in each category.

Tables

input	output
-2	3
1	-2
2	5
5	-2

input	output
-3	2
-2	4
1	3
1	-2

input	output
1	1
1	-1
4	2
4	-2

input	output
0	2
1	6
2	18
3	54

Ordered Pairs

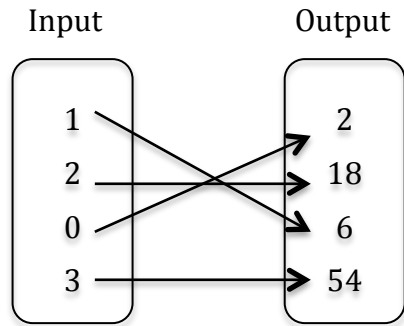
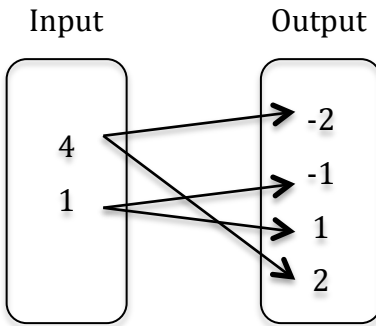
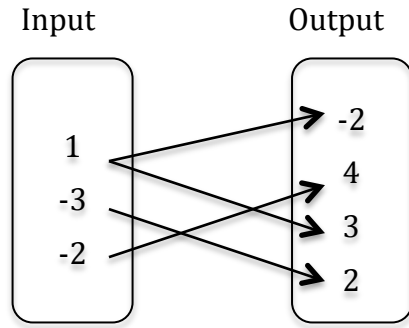
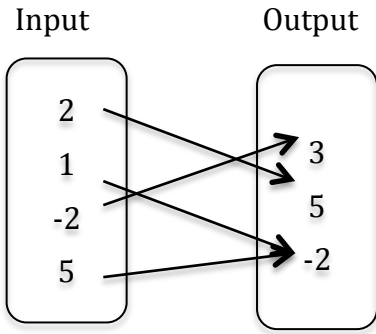
$\{ (-2, 3), (1, -2), (2,5), (5, -2) \}$

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

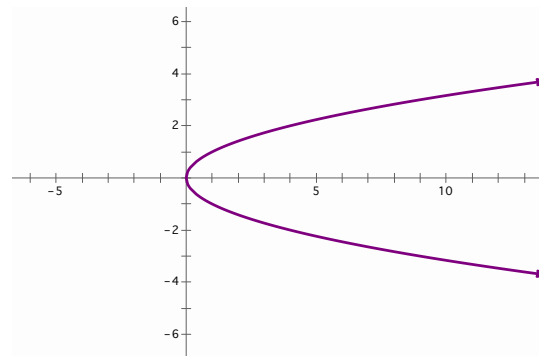
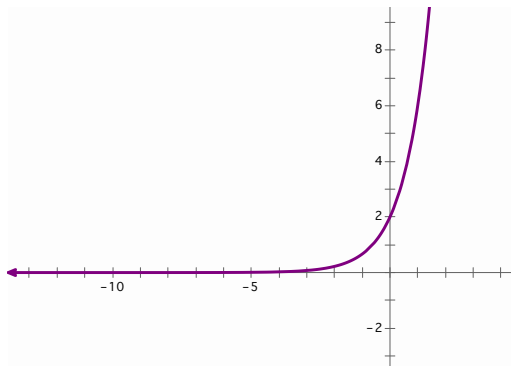
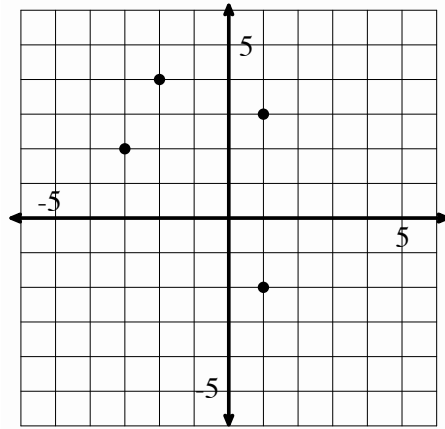
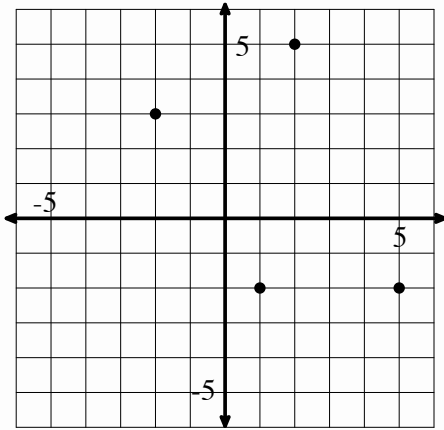
$\{ (1, 1), (1, -1), (4, 2), (4, -2) \}$

$\{ (0, 2), (1, 6), (2, 18), (3, 54) \}$

Maps



Graphs



Matrix Operations Review

Name _____ Period _____

Previously we have worked with matrices and learned when and how to add and subtract them as well as how to multiply matrices. We also used row reductions to solve systems of equations using a matrix.

Below a couple of examples of matrix operations are provided to refresh your memory. Look at them to assist you in completing the matrix operations.

Addition and Subtraction of Matrices	Matrix Multiplication
$\begin{bmatrix} -2 & 3 & -4 \\ 5 & -1 & 6 \end{bmatrix} + \begin{bmatrix} 3 & -1 & 7 \\ 2 & 8 & -3 \end{bmatrix}$ $\begin{bmatrix} -2+3 & 3+(-1) & -4+7 \\ 5+2 & -1+8 & 6+(-3) \end{bmatrix}$ $= \begin{bmatrix} 1 & 2 & 3 \\ 7 & 7 & 3 \end{bmatrix}$	$\begin{bmatrix} 8 & 9 \\ -2 & 3 \\ 4 & -1 \end{bmatrix} \cdot \begin{bmatrix} -1 & 5 & 2 \\ -3 & -2 & 7 \end{bmatrix}$ $\begin{array}{ll} 8 \cdot -1 + 9 \cdot -3 = -35 & 8 \cdot 5 + 9 \cdot -2 = 22 \quad \dots \\ -2 \cdot -1 + 3 \cdot -3 = -7 & -2 \cdot 5 + 3 \cdot -2 = -16 \quad \dots \\ \cdot & \cdot \\ \cdot & \cdot \\ \cdot & \cdot \end{array}$ $= \begin{bmatrix} -35 & 22 & 79 \\ -7 & -16 & 17 \\ -1 & 22 & 1 \end{bmatrix}$

Perform the matrix operations below.

1.

$$\begin{bmatrix} 8 & 11 \\ -4 & 7 \end{bmatrix} - \begin{bmatrix} 3 & 4 \\ 5 & 2 \end{bmatrix}$$

2.

$$\begin{bmatrix} 9 & 2 & -3 & 6 \\ 3 & -1 & 5 & -4 \end{bmatrix} + \begin{bmatrix} -5 & -2 & 9 & 5 \\ 1 & -7 & 2 & 6 \end{bmatrix}$$

3.

$$\begin{bmatrix} 1 & 2 & 1 \\ 2 & 4 & 3 \end{bmatrix} \cdot \begin{bmatrix} 0 & 1 \\ 2 & 5 \\ 1 & 0 \end{bmatrix}$$

4.

$$\begin{bmatrix} 2 & 5 \\ 1 & 3 \\ -1 & 4 \end{bmatrix} \cdot \begin{bmatrix} 6 & 7 & 2 & 1 \\ 3 & 5 & 1 & 8 \end{bmatrix}$$

Super REVIEW!!!

Write a matrix and use it to solve the system.

$$\begin{cases} 3x + 4y = 12 \\ -6x + y = 3 \end{cases}$$