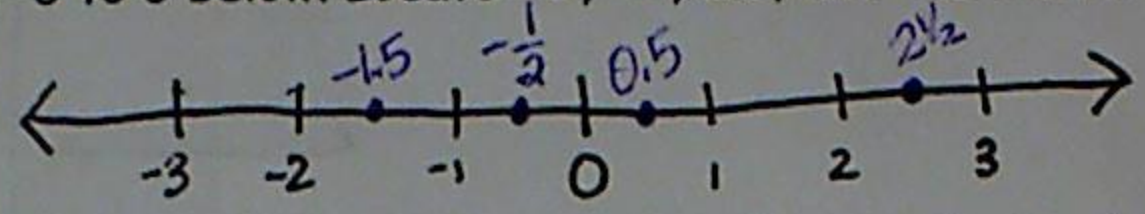
Name: _____ Hour: _____

Lesson 2: Relations

Objective: Students will use the coordinate plane to represent relations.

Essential Question: How do tables and graphs represent relations?

Draw a number line from -3 to 3 below. Locate $2\frac{1}{2}$, $-\frac{1}{2}$, 0.5, and -1.5 on the number line.



Coordinate Plane Quick Discussion - How do maps use the coordinate plane for locating towns?

Relations

A relation is any set of ordered pairs. They can be represented as a table and as a graph. The *domain of the relation is the set of x-coordinates. The range of the relation is the set of y-coordinates.

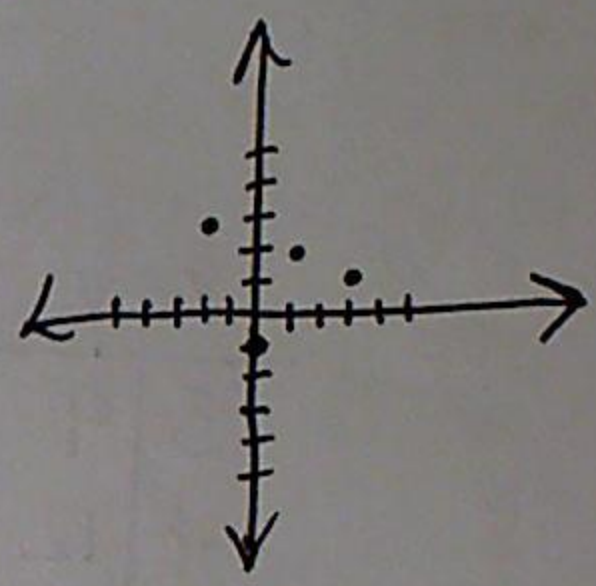
Ordered Pairs
(-2, 3)
(1, 2)
(0, -1)
(3, 1)

The domain is (-2, 1, 0, 3)

The range is (3, 2, -1, 1)

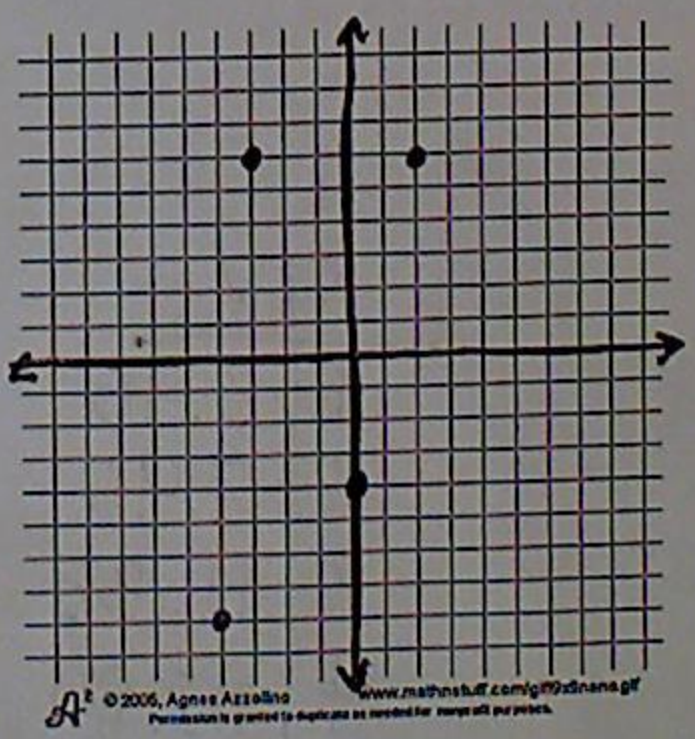
Table

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



Example 1: Express the relation {(2, 6), (-4, -8), (-3, 6), (0, -4)} as a table and a graph. Then state the domain and range.

x	y
2	6
-4	-8
-3	6
0	-4

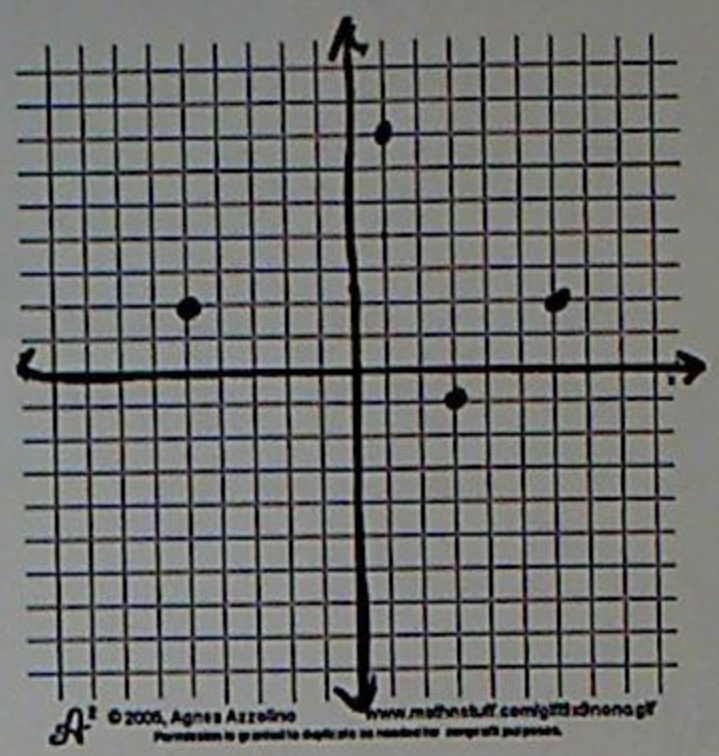


Domain: (2, -4, -3, 0)

Range: (6, -8, -4)

Example 2: Express the relation {(-5, 2), (3, -1), (6, 2), (1, 7)} as a table and a graph. Then state the domain and range.

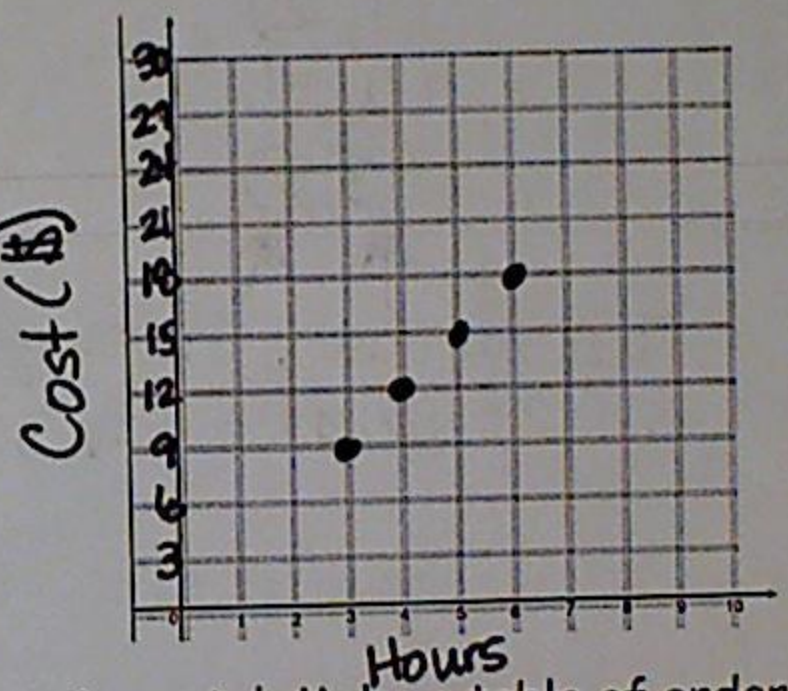
X	Y
-5	2
3	-1
6	2
1	7



Domain: (-5, 3, 6, 1) Range: (2, -1, 7)

Example 3: It costs $3 per hour to park at the Wild Wood Amusement Park. Make a table of ordered pairs in which the x-coordinate represents the hours and y-coordinate represents the total cost for 3, 4, 5, and 6 hours. Then graph the ordered pairs.

X	Y
3	9
4	12
5	15
6	18



Example 4: A movie rental store charges $3.95 per movie rental. Make a table of ordered pairs in which the x-coordinate represents the number of movies rented and the y-coordinate represents the total cost for 1, 2, 3, or 4 movies. Then graph the ordered pairs.

X	Y
1	3.95
2	7.90
3	11.85
4	15.80