Intro to Algebra

Guided Notes

Unit 4

Pre-Alg 2-6, Alg 1-9, 3-1, 3-2, 3-3

NAME _____

Pre-Alg 2-6 The Coordinate System (and lesson 1-6)

The coordinate system uses 2 number lines to locate a _____.

_____ - where 2 number lines intersect at their 0 point.

x-axis is the _____ number line.

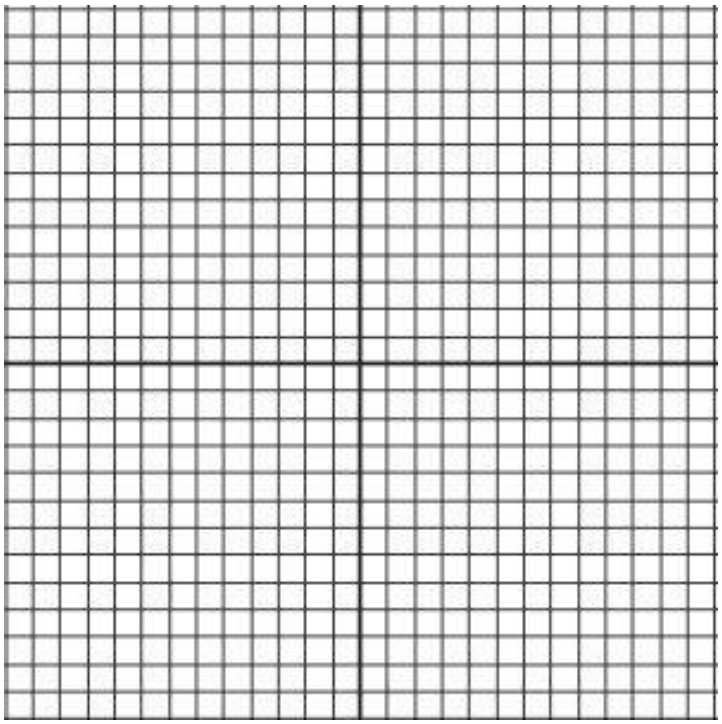
y-axis is the _____ number line.

Ordered pair (x, y)

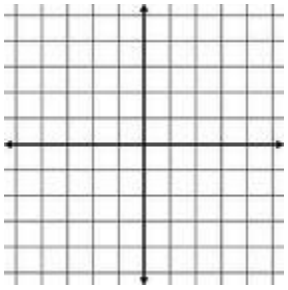
EX. 1 Plot and label ordered pairs on coordinate system.

(2,6), (2,0), (5,3), (-1,4), (-4,3), (-5,-3), (0,-5), (4,-4)

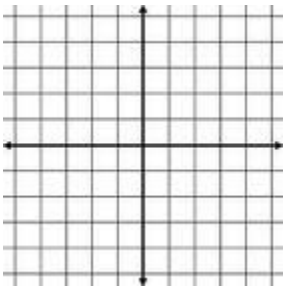
A B C D E F G H



Quadrants - _____



EX: Write 4 ordered pairs and graph for $x + y = 4$

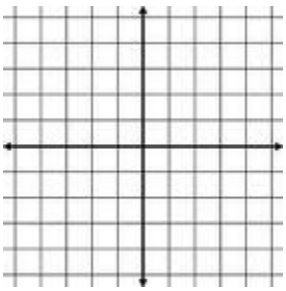


Relation – a set of _____.

Domain – the set of all _____.

Range – the set of all _____.

EX: Express the relation { (5, 3), (0, 2), (1, 6), (5, 0) } as a table and graph. Then give the domain and range.



Alg Lesson 1-9 Functions and Graphs (Use book)

Function – _____ between x and y using a coordinate system

Dependent and Independent Variables – See Ex. 2

Identify each – the price for so many ears of corn (the price depends on how many ears so price is dependent and # of ears is independent)

You can analyze a graph with no numbers.

See Ex. 3 (Pg 54) and do problem

This represents the temperature in the classroom on a winter day. Describe what is happening.

Data can be shown differently. See Ex. 4 Pg. 55.

Relation – a set of _____ _____

Domain – the set of _____

Range – the set of _____

Discrete function – graph consists of points that are not _____

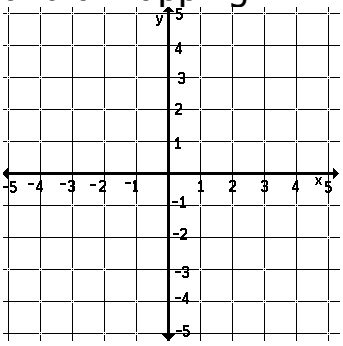
Continuous function – graph with a _____ or smooth _____

Alg 3-1 Representing Relations

Review: A relation is a set of _____.
_____ is the set of x-values.
Range is the set of _____.

A _____ can be shown as ordered pairs, a table, a graph, or a mapping.

Ex: Express the relation { (4,3), (-2,-1), (-3,2), (2,-4), (0,-4) } as a table, a graph, and a mapping. Then give the domain and the range.



Domain is the _____ _____ if you are not sure.

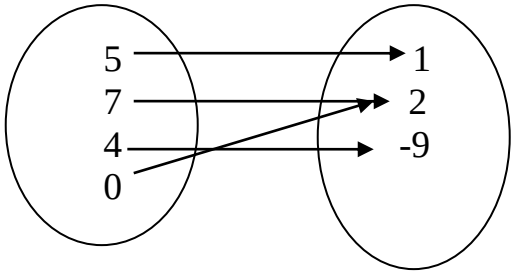
Ex: Emily earns $7 for walking 1 dog, $28 for 4 dogs, $42 for 6 dogs, and $49 for 7 dogs. Give the domain and range. ($ depends on dogs, so dogs are independent)

Inverse relation – switch the coordinates of the ordered pair.

Ex: { (3,-2), (0,-5), (-2,1) }

Inverse: _____

Ex: Express the relation shown in the mapping as a set of ordered pairs. Write the inverse of the relation.

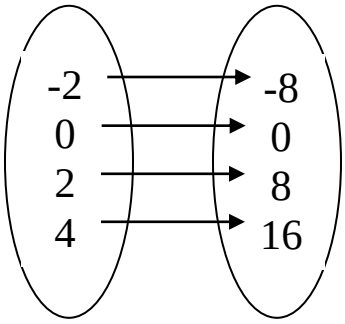


Alg 3-2 Representing Functions

Function – a relation in which each element of the domain is paired with exactly one element of the range. (_____)

Ex: Determine whether each relation is a function and explain why or why not.

a.

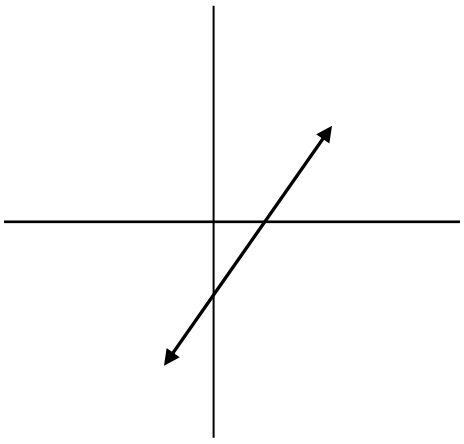


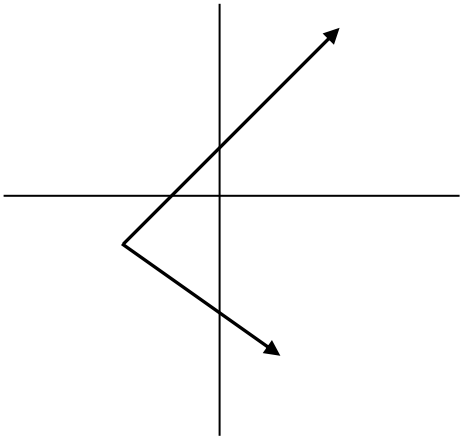
b.

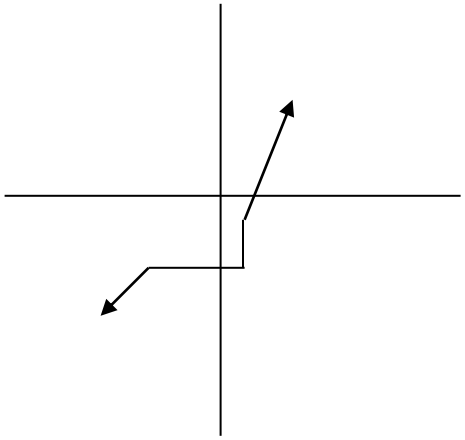
X	Y
-7	-12
-4	-9
2	-3
2	0

The _____ _____ _____ can be used to see if a graph or an equation is a function. To be a function, the vertical line may cross the graph in only _____ spot at a time.

Draw some sketches:







You may have to graph to see if it is a function. Then use the vertical line test.

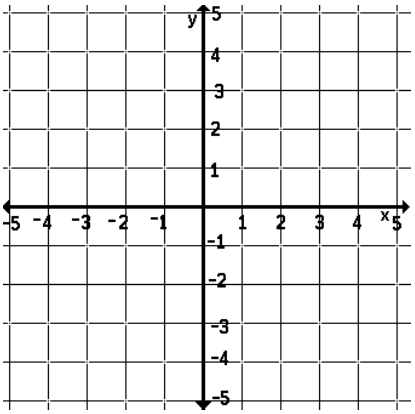
Is this a function?

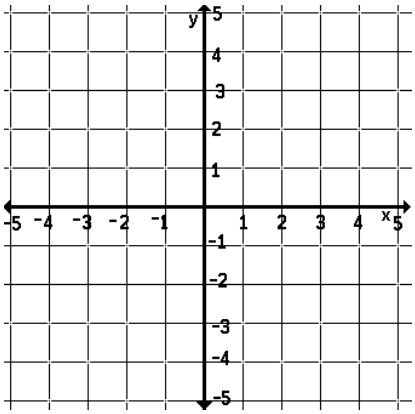
1. $y = x + 2$

x	y

2. $x = -2$

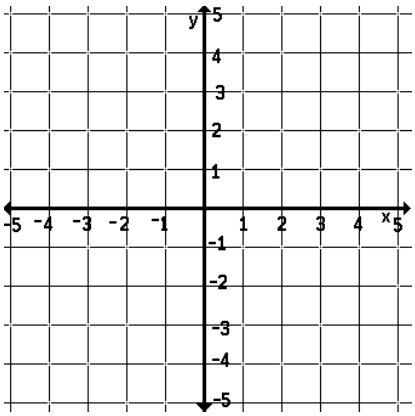
x	y





3. $y^2 = x$

x	y



Alg 3-3 Linear Functions

Linear Equation – equation of a line. Has one or two variables with no variable having an exponent other than 1.

Ex: Determine whether each equation is linear.

1. $5x + 3y = z + 2$

2. $2x = 4y + 9$

3. $\frac{3}{4}x = y + 8$

_____ is the x-coordinate of the point where the graph crosses the x-axis.
_____ is the y-coordinate of the point where the graph crosses the y-axis.
Zero – is the value of x when _____. The zero of a linear function is its x-intercept.

See examples 2 and 3 on Pg. 156-157

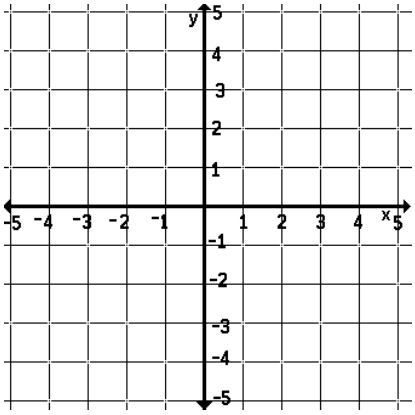
Ex: Use the table to determine the x-intercept, y-intercept and zero of the graph of the function.

X	-3	-2	-1	0	1
Y	2	0	-2	-4	-6

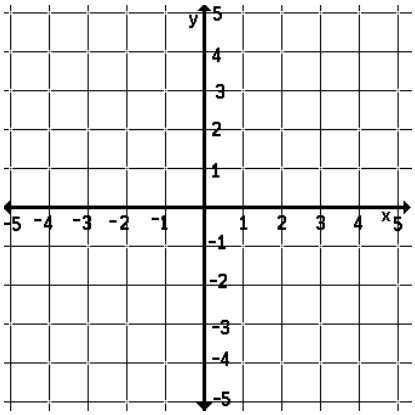
The graph of a linear equation represents _____ of its solutions. A point _____ on the line would _____ be a solution.

It is easier to graph if the equation is solved for _____.

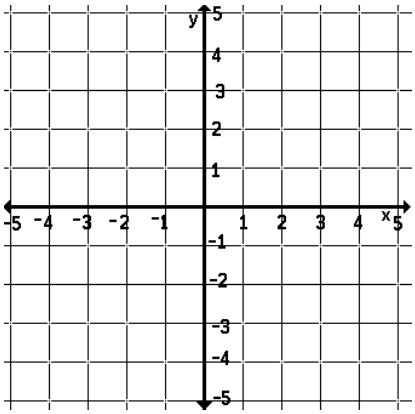
Ex: 1. Graph $y = 2x + 2$



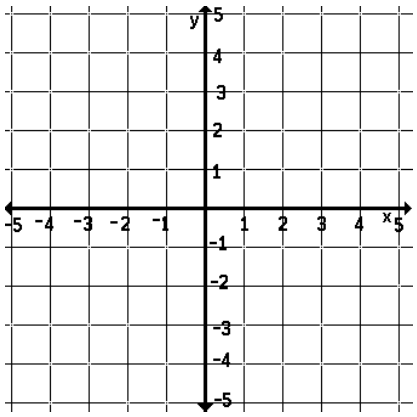
2. Graph $x = 2y + 1$



3. Graph $3x + y = -1$



4. Graph $x = 4$



Sometimes you are asked to graph by using the _____.
If so, let $x = 0$ and then let $y = 0$. Graph these 2 points and connect.

Ex: Graph $4x - y = 4$ using the x-and y-intercepts.