Name _____ Math 098 – Elementary Algebra
Date _____ Class #12
Prof. Philip Abel

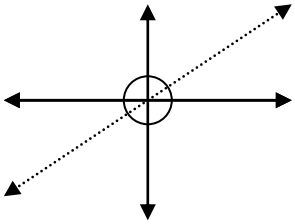
Graphing Linear Equations: $y = mx + b$

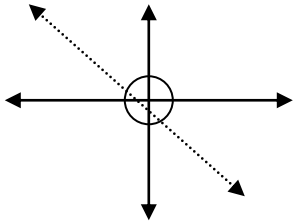
Quality – Accuracy – Transfer – 100%

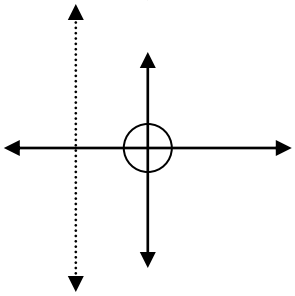
Section 1. Slope.

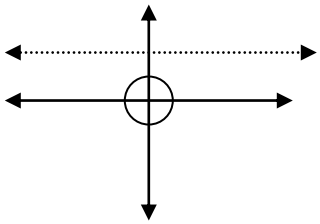
1. The slope of a line is the manner in which it "rises" and "falls" from left to right.

   a. Examples of Slope.

(1) _____ 

(2) _____ 

(3) _____ 

(4) _____ 

Section 2. The Slope Formula: Given 2 Points:

A first point given: is known as: _____ and has the coordinates: _____

A second point given: is known as _____ and has the coordinates: _____

The slope of a line through any two given points may be found as: _____ = _____ = _____

Section 3. The Linear Equation.

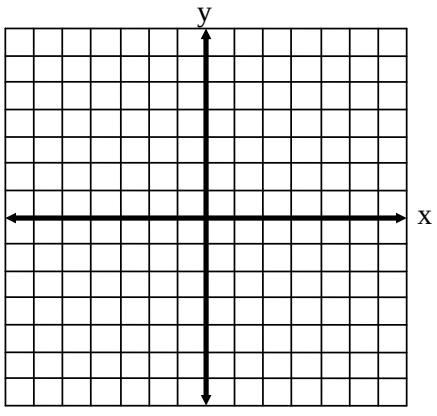
1. Re-Arrange the Following in $y = mx + b$ form.

   (1) In the equation, m = _____ = _____ = _____

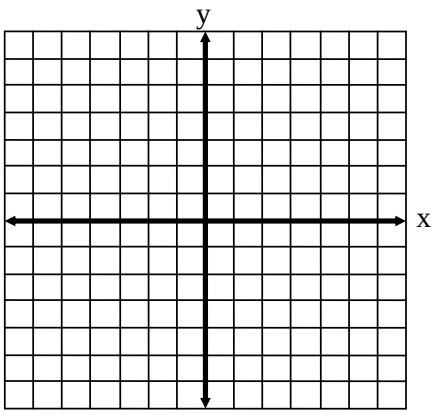
   (2) In the equation, b = _____ = _____

Section 3. Practice – The Slope of a Line between 2 Points.

1. Find the slope of the line between the points: (–6, 1) and (3, 5)



2. Find the slope of the line illustrated in the following diagram:



Section 5. Parallel and Perpendicular Lines in the Same Plane:

1. RULE: Parallel lines in the same plane have slopes that are: _____

2. RULE: Perpendicular lines in the same plane have slopes that are: _____

3. Using the slope Formula, determine whether the following line segments are parallel, perpendicular, or neither.

a. $\overline{AB}$ $A(5,-4)$ $B(-5,1)$
$\overline{CD}$ $C(0,-4)$ $D(4,4)$

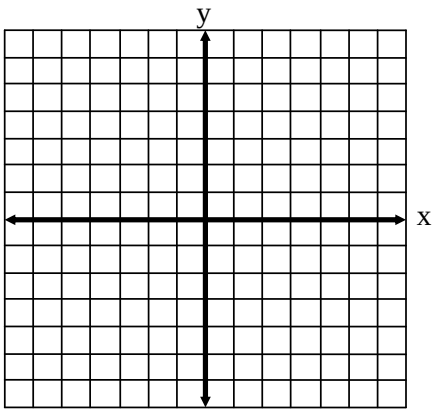
b. $\overline{MN}$ $M(2,3)$ $N(10,8)$
$\overline{ST}$ $S(-3,-3)$ $T(5,2)$

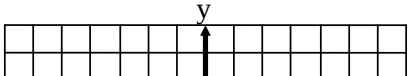
c. $\overline{XY}$ $X(1,-4)$ $Y(5,-1)$
$\overline{QR}$ $Q(0,4)$ $R(6,-4)$

Section 6. Drawing lines by the "Point-Slope" Method.

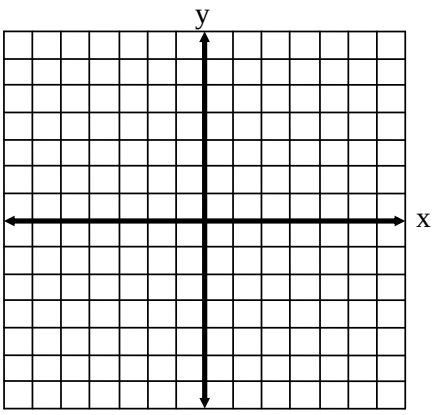
2. Given a point on a line, and the slope of that line, find 3 points, and draw the line.

(1) Passes through the point $(2,-1)$ and has a slope of $\frac{1}{3}$





(2) Passes through the point (2, 4) and has a slope of $-\frac{3}{2}$



Section 7. Graphing Linear Equations: The Slope – Intercept Form for a Line.

***NOTE: This is a great example of the "Good News – Bad News" Game.

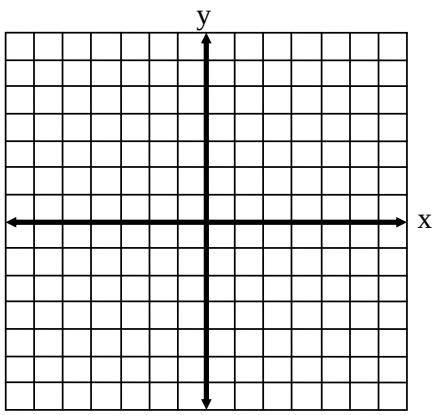
Good News: _____ Bad News: _____

_____ _____

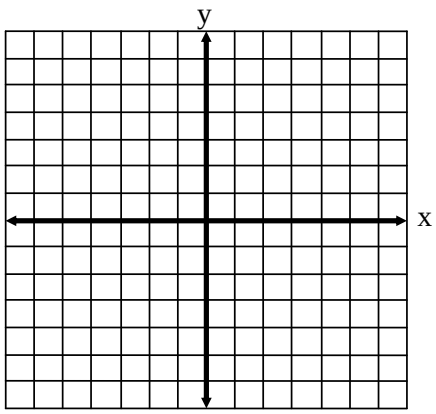
NOW: Let's Re-Arrange Linear 1st Degree Equations to $y = mx + b$ form by "imagining" the 3 columns for the terms in the equation of a line.

		Equations	**Re-Arrange**	**Simplify**	**m**	**b**
1.	a.	$2x + y = 5$	_____	_____	_____	_____
	b.	$y - 3x - 7 = 0$	_____	_____	_____	_____
	b.	$4x - 2y = 6$	_____	_____	_____	_____
	c.	$2x + 2y = 10$	_____	_____	_____	_____
	d.	$5x = 2y - 14$	_____	_____	_____	_____

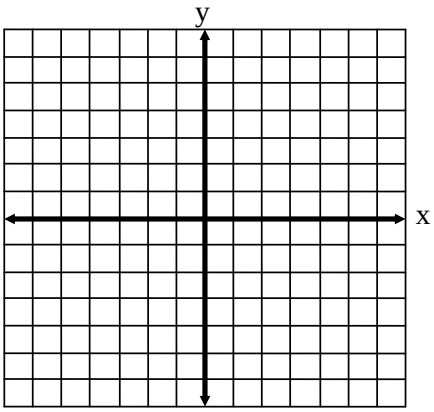
2. $2x + y = 5$



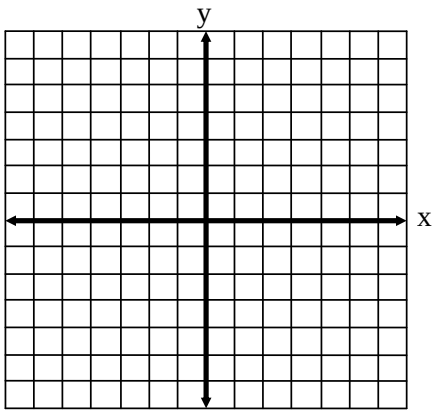
3. $y - 3x - 7 = 0$



5. $4x - 2y = 6$



6. $2x + 2y = 10$



Homework Section – Chapter _____

Section	***Page(s)***	***Problems***
4.3	$240 \rightarrow 241$	11, 15, 19, 27, 31, 41, 45, 53, 57, 59