Name _____
Date _____
Prof. Philip Abel

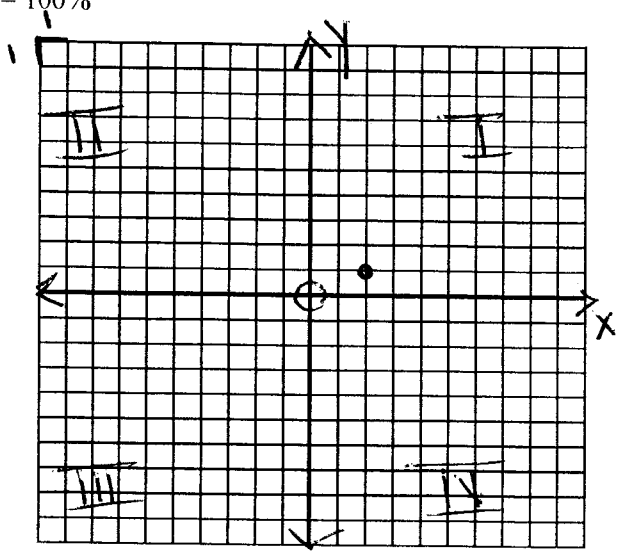
Math 098 – Elementary Algebra
Class #11

Coordinate Arithmetic

Quality – Accuracy – Transfer – 100%

Section 1. The Cartesian Plane.

1. The x-axis — Horizontal
2. The y – axis — Vertical
3. The Origin
4. The Scale — Left Corner
5. Quadrants — I, II, III, IV
6. Ordered Pairs — (X, Y) (2, 1)
7. The Abscissa — X-Coordinate
8. The Ordinate — Y-Coordinate



Section 2. Ordered Pairs.

1. Plot the following ordered pairs on the Cartesian plane. Indicate the quadrant in which the point lies. If the point lies on one of the axes, indicate that as well.

A(5, 4) — I

B(−3, 6) — II

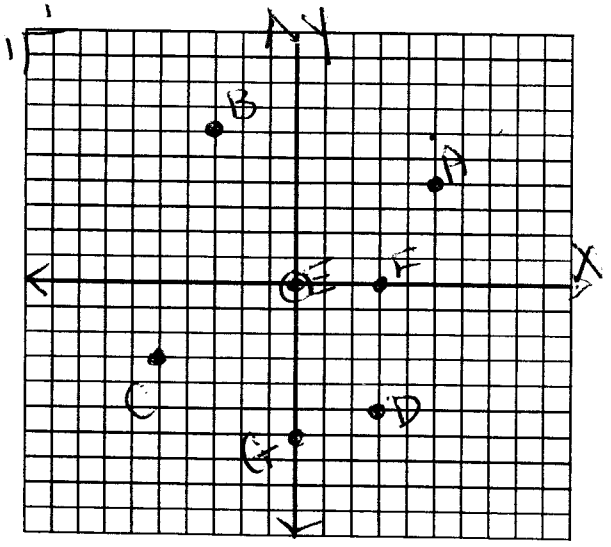
C(−5, − 3) — III

D(3, −5) — IV

E(0, 0) — Origin

F(3, 0) — X-axis

G(0, −6) — Y-axis

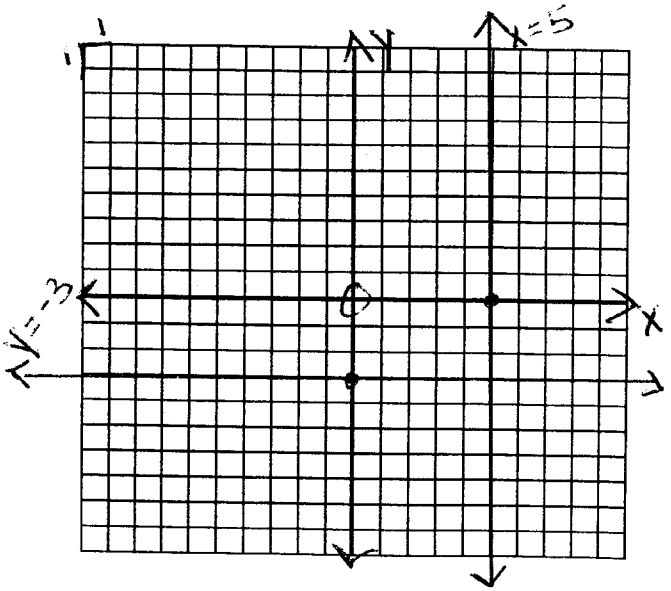


Section 3. Graphing Horizontal and Vertical Lines on the Cartesian Plane.

2. Graph the following by doing the interpretation on its equation.

$x = 5$ — No Y term // to Y axis

$y = -3$ — No X term // to X axis

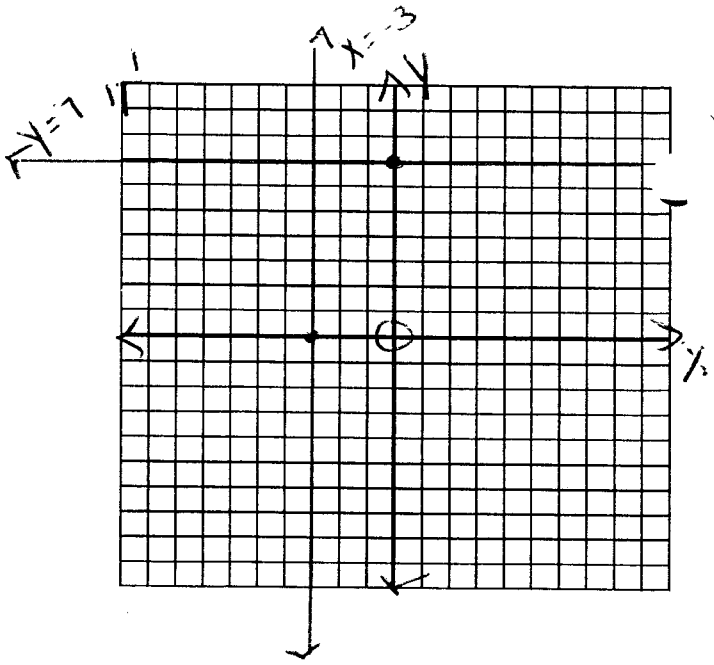


2. Graph the following by doing the interpretation on its equation.

$x = -3$ $y = 7$

No Y-term
// to Y axis

no X-term
// to X axis



Section 4. Graphing Linear Equations in the Cartesian Plane.

Linear Equations in the Cartesian Plane are of the General Form: $ax + by = c$

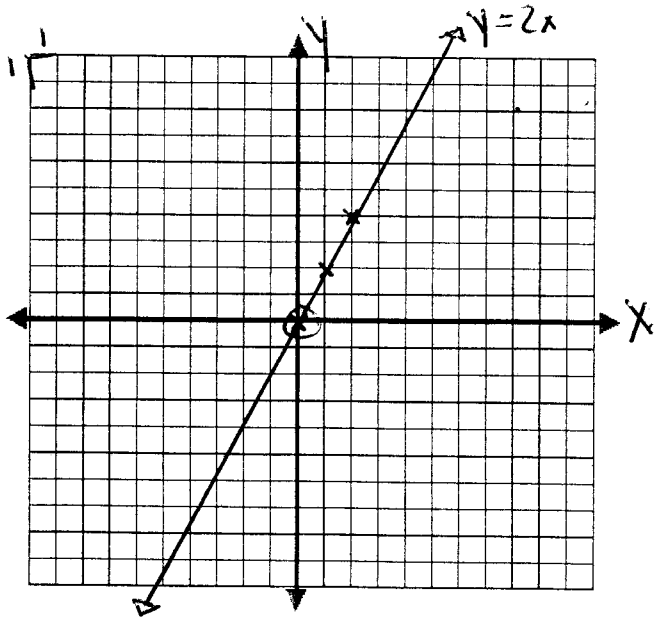
1. $y = 2x$

x	y
0	0
1	2
2	4

$y = 2(0)$
$y = 0$

$y = 2(1)$
$y = 2$

$y = 2(2)$
$y = 4$



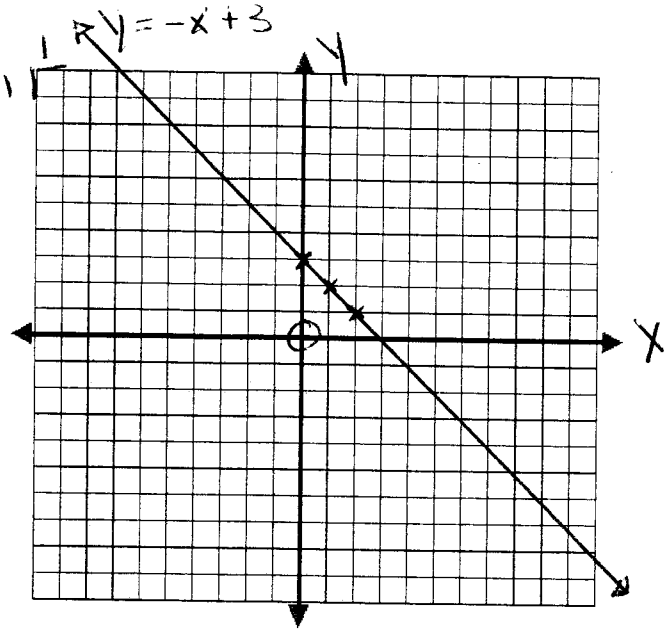
2. $y = -x + 3$

x	y
0	3
1	2
2	1

$y = -0 + 3$
$y = +3$

$y = -1 + 3$
$y = 2$

$y = -2 + 3$
$y = 1$



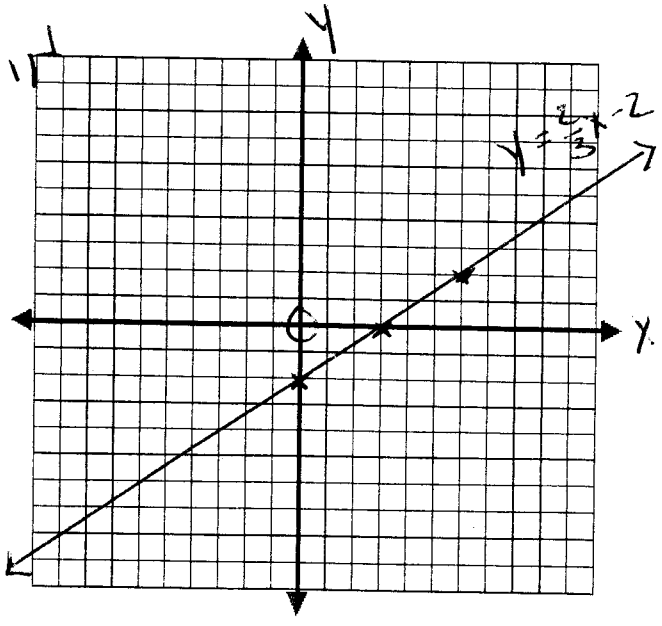
3. $y = \frac{2}{3}x - 2$

x	y
0	-2
3	0
6	2

$y = \frac{2}{3}(0) - 2$
$y = -2$

$y = \frac{2}{3}(3) - 2$
$y = 2 - 2$
$y = 0$

$y = \frac{2}{3}(6) - 2$
$y = 4 - 2$
$y = 2$



4. Work the following son separate graph paper as demonstrated in class. Show all work and support each point you graph.

a. $2x - y = 6$

$$\frac{-y}{-1} = \frac{-2x}{-1} + \frac{6}{-1}$$

$$y = 2x - 6$$

b. $3x - 2y = -4$

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

c. $2x = y - 4$

$$y = +\frac{3}{2}x + 2$$

$$y - 4 = 2x$$

$$y = 2x + 4$$

Homework Section

Section(s)	Page(s)	Problem(s)
4.2	248	25, 29, 33, 37, 43

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Problem 4a.

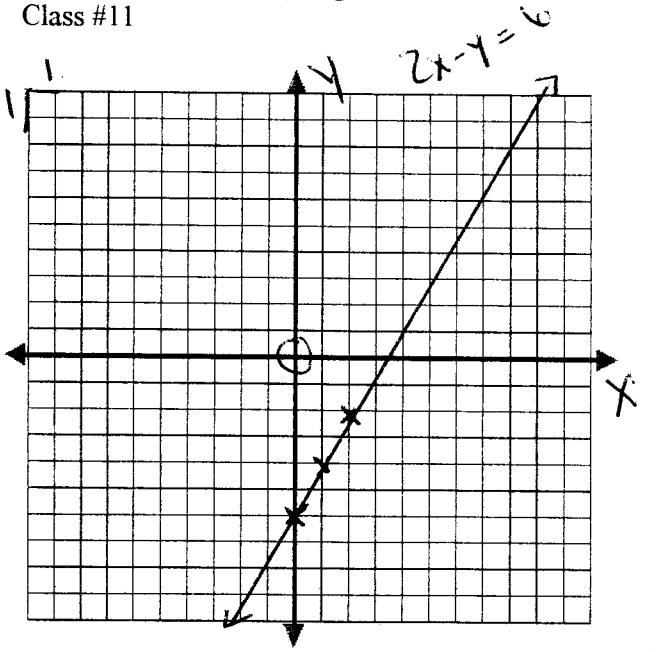
x	y
0	-6
1	-4
2	-2

$y = 2x - 6$

$y = 2(0) - 6$
$y = -6$

$y = 2(1) - 6$
$y = 2 - 6$
$y = -4$

$y = 2(2) - 6$
$y = 4 - 6$
$y = -2$



Problem 4b.

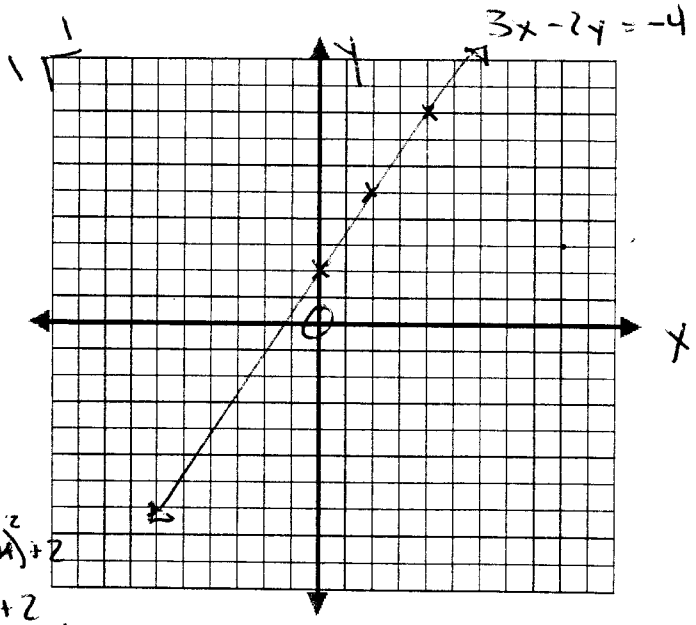
x	y
0	2
2	5
4	8

$y = \frac{3}{2}x + 2$

$y = \frac{3}{2}(0) + 2$
$y = +2$

$y = \frac{3}{2}(2) + 2$
$y = 3 + 2$
$y = 5$

$y = \frac{3}{2}(4) + 2$
$y = 6 + 2$
$y = 8$



Problem 4c.

x	y
0	4
1	
2	

$y = 2x + 4$

$y = 2(0) + 4$
$y = +4$

$y = 2(1) + 4$
$y = 2 + 4$
$y = 6$

$y = 2(2) + 4$
$y = 4 + 4$
$y = 8$