Name _____ Math 098 – Elementary Algebra
Date _____ Class #13
Prof. Philip Abel

Writing the Equation of a Line

Quality – Accuracy – Transfer – 100%

Section 1. Writing the Equation of ANY Line: 2 Methods.

1. What is the general form for the Equation of ANY Line: _____

   x and y: _____

   m = _____

   b = _____

2. Practice Method 1: Knowing the slope and the y-intercept:

   a. Write the equation of a line with a slope of $-\frac{2}{3}$ and a y-intercept of +5.

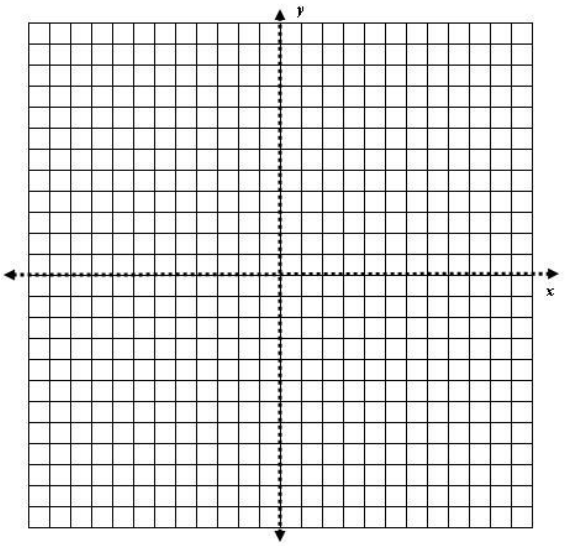
   b. Write the equation of a line with a slope of $\frac{4}{3}$ and passes through the point (0, −2)

3. Practice Method 2: Knowing 2 points on a line. **The "Abel – 1 – 2 – 3 Method"**

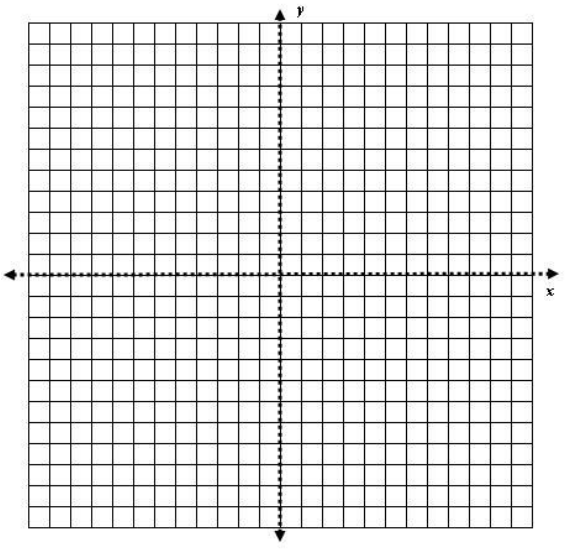
Step 1: _____ Step 2: _____ Step 3: _____

_____ _____ _____

a. Write the equation of a line that passes through the points A(2, 8) and B(10, 4)

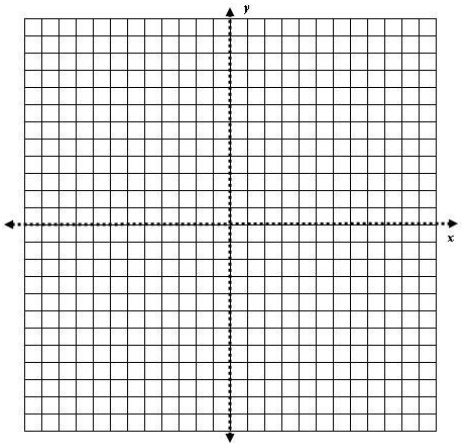


b. Write the equation of a line that passes through the points C(–1, 8) and D(4, –2)

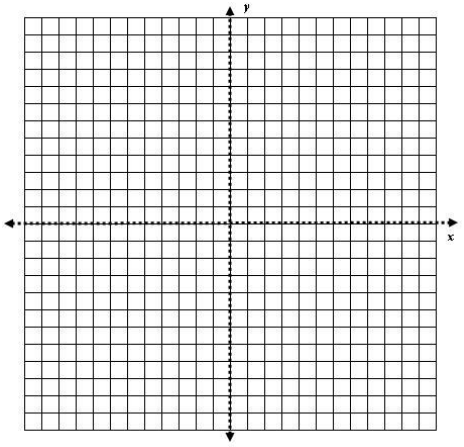


4. Writing the Equation of a Line – YOUR TURN! [Use of the Graphs are Optional].

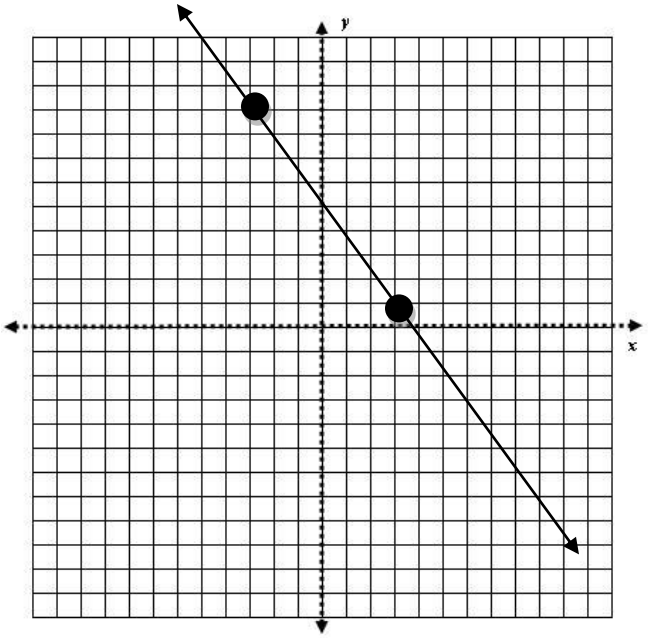
a. Write the Equation of the line with a slope of $-\frac{2}{3}$ and passes through the point (0, –5).



b. Write the equation of a line that passes through the points A(–2, 5) and B(4, –7)



c. Write the equation of a line.



WORKSHOP:

1. Write the equation of a line that passes through the point $A(4, -5)$ and has a slope of $m = -\frac{3}{2}$

2. Write the equation of a line that passes through the point $B(6, -1)$ and has a slope of $m = \frac{2}{3}$

3. Write the equation of a line that passes through the points $A(2, -5)$ *and* $B(6, -1)$.

4. Write the equation of a line that passes through the points $C(4, 6)$ *and* $D(6, 3)$

WORKSHOP 2:

1. Are the following Points on lines that a Parallel, Perpendicular, or Neither.

a. $A(-5, 4)$ *and* $B(3, 10)$
$C(2, 10)$ *and* $D(5, 6)$

b. $E(4, 10)$ *and* $F(7, 12)$
$G(-5, -4)$ *and* $H(-3, -1)$

c. $2x + 3y = -12$
$y = -\frac{2}{3}x + 3$

d. $5x - 6y = 18$
$-6x + 5y = 10$

Homework Section – Chapter _____

Section	***Page(s)***	***Problems***
4.4	$270 \rightarrow 271$	13, 17, 29, 33, 41, 43, 51, 53, 57, 61

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Pre-Lesson Session:

1. Graph the following Inqualities:

a. $4x + 5 \leq -3$

< ----|----|----|----|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|---- >
–10 –9 –8 –7 –6 –5 –4 –3 –2 –1 0 1 2 3 4 5 6 7 8 9 10

Interval Notation: _____

b. $5 > -3x - 4$

< ----|----|----|----|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|---- >
–10 –9 –8 –7 –6 –5 –4 –3 –2 –1 0 1 2 3 4 5 6 7 8 9 10

Interval Notation: _____

Concept: "Betweeness"

c. $4x + 5 \leq -3$

< ----|----|----|----|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|---- >
–10 –9 –8 –7 –6 –5 –4 –3 –2 –1 0 1 2 3 4 5 6 7 8 9 10

Interval Notation: _____

d. $4x + 5 \leq -3$

< ----|----|----|----|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|---- >
–10 –9 –8 –7 –6 –5 –4 –3 –2 –1 0 1 2 3 4 5 6 7 8 9 10

Interval Notation: _____

Re-Arranging Linear Equations: $y = mx + b$

2. $2x + 3y = 12$ _____ _____

slope: _____ y-intercept: _____

3. $x - 5y - 20 = 0$ _____ _____

slope: _____ y-intercept: _____

4. $4y + 2x = -8$ _____ _____

slope: _____ y-intercept: _____

5. $14 = -3x + 2y$ _____ _____

slope: _____ y-intercept: _____

Find the Slope of the line between Two Points:

6. $A(-3, 5)$ *and* $B(2, 15)$

7. $C(6, -4)$ *and* $D(-2, 10)$