Lesson Title: Writing and Representing Linear Equations Date:

The MAIN POINT to this lesson is to INTRODUCE & REVIEW linear relations concepts you have already been presented in grades 9 & 10. Subsequent lessons will be devoted to PRACTICING & APPLYING these fundamental skills/concepts

(A) Lesson Objectives

a. Review forms of Linear Equations ➔ (i) Slope-Intercept form & (ii) Standard/General Form

b. Write linear equations in both forms given
   i. Slope & Point ii. 2 Points iii. Graph iv. Data Table

c. Graphing linear equations using:
   i. Graph paper ii. TI-84

(B) Forms of Linear Equations

a. Slope – Intercept Form: _____. This form of the equation CLEARLY communicates: (a) _____. (b) _____.

b. Standard/General Form: _____. This form of the equation CLEARLY communicates: (a) _____. (b) _____.

(C) Extra Help

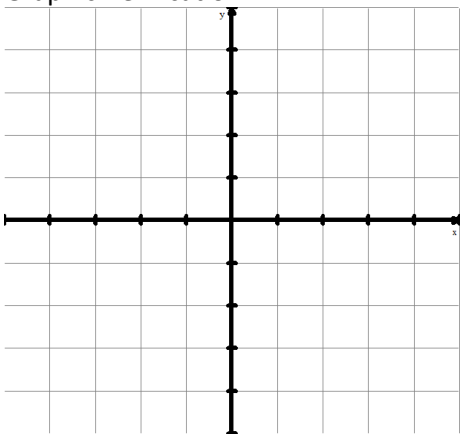
a. From PurpleMath.com ➔ Linear Equations ➔ http://www.purplemath.com/modules/strtlneq.htm
b. From WTAMU Virtual Math Lab ➔ http://www.wtamu.edu/academic/anns/mps/math/mathlab/int_algebra/int_alg_tut16_eqline.htm
c. From PatrickJMT ➔ http://patrickjmt.com/find-the-equation-of-a-line-using-point-slope-form/
d. From Khan Academy ➔ http://www.khanacademy.org/video/algebra--equation-of-a-line?playlist=Algebra

(D) HW

(E) Equations in an Algebraic Context

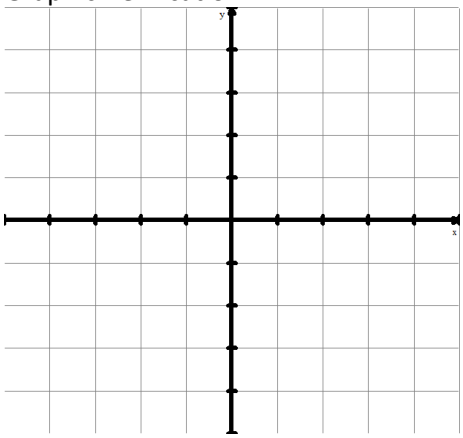
a. In order to write the equation of a line, you need to know: _____.

b. EX 1. Determine the equation of a line passing through A(-3,4) having a slope of $-\frac{2}{3}$

Using y = mx + b	Using $m = \frac{y - y_1}{x - x_1}$	Graphic Verification: 

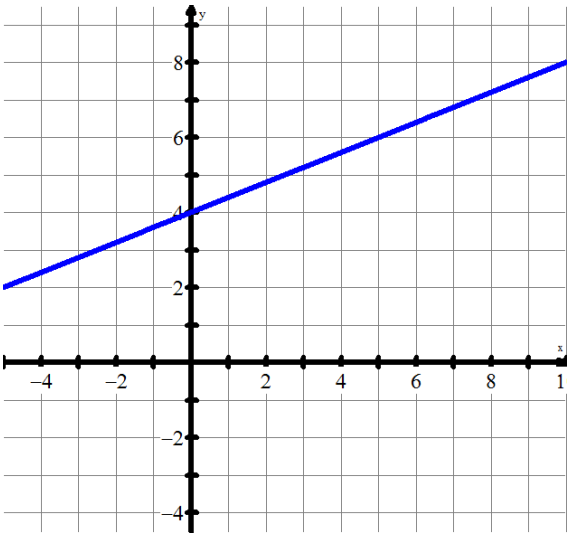
Data Table Verification:

c. EX 2. Determine the equation of a line passing through A(4,-1) and B(8,1)

Using y = mx + b	Using $m = \frac{y - y_1}{x - x_1}$	Graphic Verification: 

Data Table Verification:

d. EX 3. Determine the equation of the line whose graph is given below:



e. EX 4. Determine the equation of the line whose data table is given below:

x	3	4	6	10
y	-7	-10	-16	-28

f. Further examples:

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(F) Equations in a Modeling/Application Context

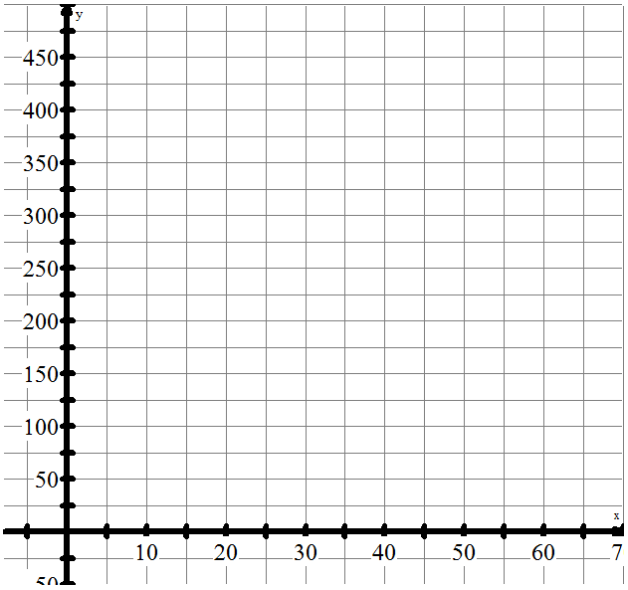
Verbal Description:

The amount of CO_2 (in ppm) in the air at the Mauna Loa Astronomical Observatory has been measured regularly since 1959. In 2000, the amount of CO2 recorded was 369.40 ppm while in 2012, the amount was 389.78 ppm.

Data Table:

Years since 1960			
CO_2 amount (in ppm)			

Graph:



Equation:

Slope:

Meaning of Slope:

Y-intercept:

Meaning of y-intercept :

Questions:

(a) When will the CO_2 levels be at 600 ppm?

(b) What was the amount of CO_2 in the air in June of this year?

(c) If I give you an additional data point, (in the year 2005, the measured amount was 379.78), will your equation change? Why? How?

(d) Interpret the statement "The 2005 rate of increase was 2.14 PPM per year"