Date: Title:

(A) **Lesson Objectives:**

a. Introduce a Linear System through a real world application
b. Define a Linear System
c. Review how to graph a linear equation in the form of y = mx+ b
d. Review how to graph a line in the form of Ax + By = C
e. Graphically, determine the intersection point of two lines and verify the intersection point.

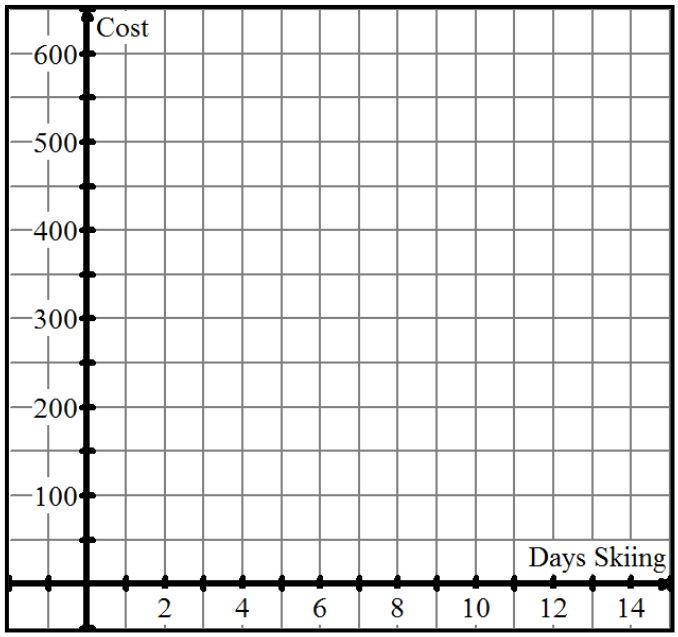
(B) Opening Investigation:

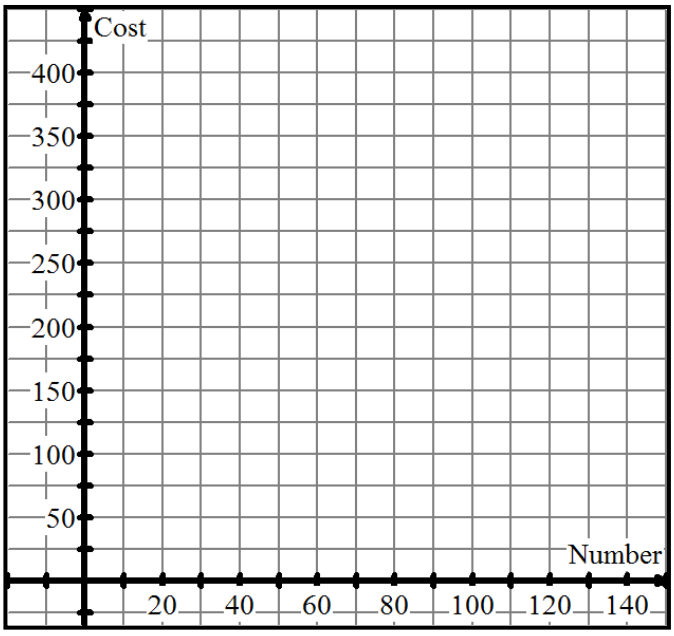
Mr Santowski is looking to join a ski club. The ski club offers two membership plans. The Standard Package simply costs me $50 per day with no registration fee. The Frequent Extremist Package costs me only $40 per day, but I have to pay a $100 registration fee for this package.

a. Write a linear equation for the Standard Package.
b. Graph the relation on the grid provided.
c. Write a linear equation for the Frequent Extremist Package.
d. Graph the relation on the same grid.
e. Where do the two lines seem to cross/intersect?
f. How could you verify that your intersection point is correct?
g. What does the intersection point MEAN given the two ski packages?
h. Is one ski package better than another? Explain your answer.

My son, Alexander, wants to join a website that will allow him to legally download music files. SHAREIT charges a $50.00 membership and then a $2.50 charge for each download. FILES 'R' US charges $3.00 per download.

a. Write a linear equation for SHAREIT.
b. Graph the relation on the grid provided.
c. Write a linear equation for the FILES 'R' US.
d. Graph the relation on the same grid.
e. Where do the two lines seem to cross/intersect?
f. How could you verify that your intersection point is correct?
g. What does the intersection point MEAN given the websites?
h. Is one ski package better than another? Explain your answer.

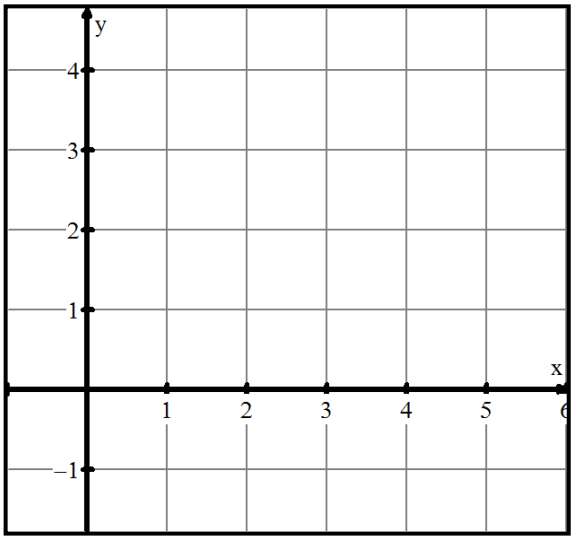




Date: Title:

(C) **Linear Systems**

a. Graph the line y = 3/2x – 2 on the grid
b. Graph the line 2x + 4y = 16 on the grid
c. Where do the lines seem to meet?
d. How would you verify your solution?
e. Verify your solution

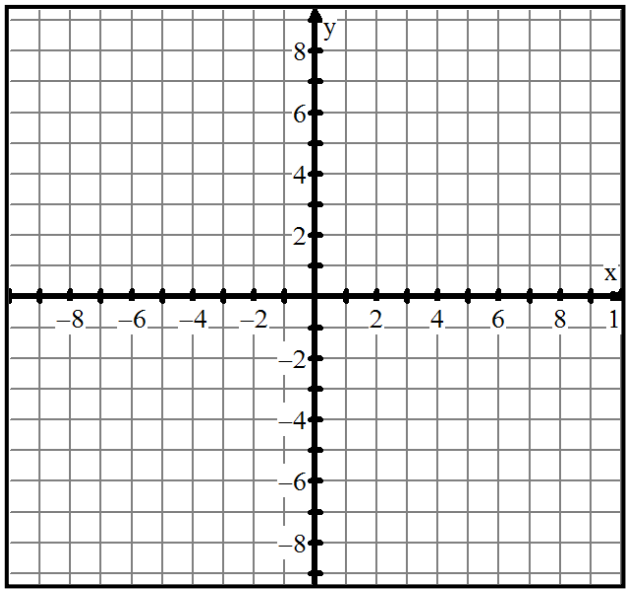


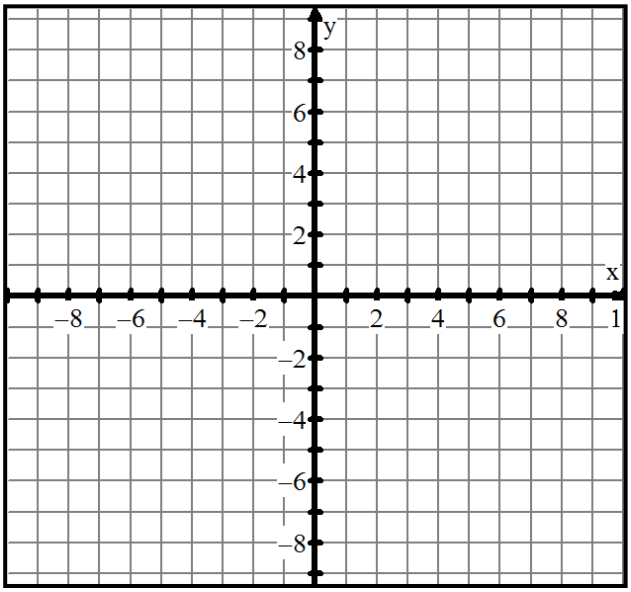
(D) Terms to Know

a. ***Linear System***: A set of equations (at least 2) that represent linear relations between the same two variables
b. ***Solution to a Linear System***: a point that satisfies both the relations in the system of linear equations. We also refer to the solution as the ***point of intersection***.

(E) **Further Examples for Classwork**

a. Example #1: Solve and verify the following linear system by graphing: $y = \frac{1}{2}x - 3$ and $x + y = -6$
b. Example #2: Solve and verify the following linear system by graphing: $x + 2y = 2$ and $x - y = 8$

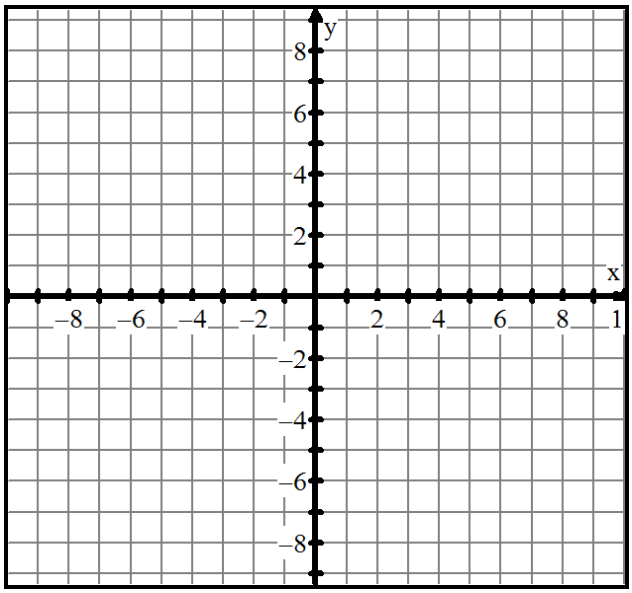


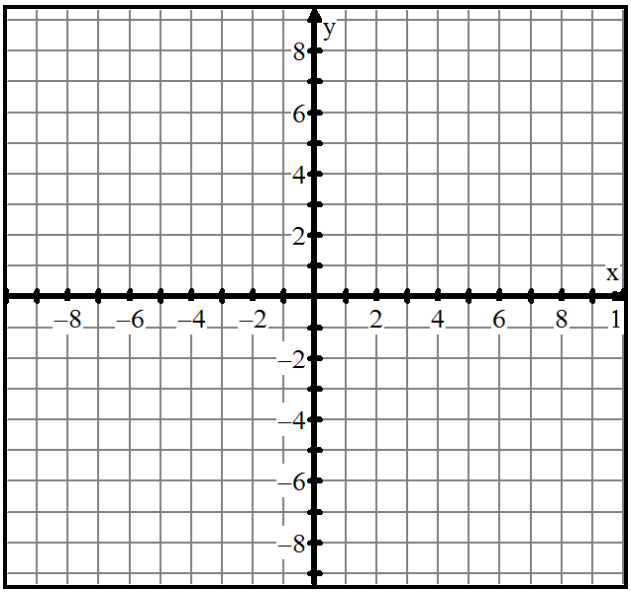


Date: Title:

a. Example #3: Solve and verify the following linear system by graphing: $x+2y=7$ and $y=4x-10$

b. Example #4: Solve and verify the following linear system by graphing: $y=-\frac{1}{2}x+\frac{9}{2}$ and $y=3x-6$





(F) **Homework/Resources**

- HOMEWORK: from the Nelson Textbook: S4.5, p245-247, Q1,2,3,6,8,9

- Help from PurpleMath with slope ➔ http://www.purplemath.com/modules/systlin1.htm
- Practice from KutaSoftware.com ➔ http://www.kutasoftware.com/FreeWorksheets/Alg1Worksheets/Systems%20of%20Equations%20Graphing.pdf
- Video link from www.onlinemathlearning.com ➔ http://www.onlinemathlearning.com/graphing-systems-of-equations.html