

Equations of Lines (standard form,  $Ax + By = C$ )

I can write a system of equations in standard form given a real life situation.

We've studied word problems that allow for you to write an equation in slope intercept form. How do we know when a problem should be solved using an equation written in standard form?

In standard form, there *appears* to be 2 rates! These two numbers are the number per x and the number per y. Each of these is multiplied to x and y, respectively. There is no beginning amount, nor are there points given. However, there may be a TOTAL involved. In this case, the equation can be written in  $Ax + By = C$  form with C being the total amount. *Neither variable is dependent on the other in this case!*

As you are reading and analyzing the word problem, if you find that you can set up two addition problems, and you have two set totals (constant)... one tells you the value and the other the total number, then you will be able to write equations in standard form.

**Example 1:** You are running a concession stand at the basketball game. You sell hotdogs for \$1 and sodas for \$2.

Let your variables be the number of each of the items. X : # of hotdogs Y : # of sodas

You sold a total of 120 items. At the end of the night, you made \$200.

Write an equation for the number of items you sold:  $x + y = 120$

Write an equation for the value of the items you sold:  $1x + 2y = 200$



**Example 2:** Beaumont is sponsoring a pancake dinner to raise money for a field trip. Each adult ticket will cost \$20 and each child's ticket will cost \$10.

Let your variables be the number of each type of ticket. X : # of adults Y : # of children

You estimate a total of 70 tickets to be sold. At the end of the night, you made \$900.

Write an equation for the number of tickets you sold:  $x + y = 70$

Write an equation for the value of the tickets you sold:  $20x + 10y = 900$



our turn.

A test has *multiple choice* questions worth 2 points apiece and *short answer* questions worth 4 points apiece.

Let your variables be the # of each type of question. \_\_\_\_\_ : # of multiple choice; \_\_\_\_\_ : # of short answer.

There are a total of 30 questions. The test is worth a total of 100 points.

Write an equation for the number of questions that may be on the test: \_\_\_\_\_

Write an equation for the value of the test questions: \_\_\_\_\_

