

4.5 – Applications of Systems of Equations & Inequalities

Guide for Solving APPLICATIONS: aka - "Word Problems"

1.) Read through the ENTIRE problem before doing anything.

2.) Mark the text in the problem:

- Identify what you think is important. (ie numbers)

- Highlight / circle any key terms or vocabulary

- First, you should double-underline what the problem is asking you to find. Then write your ANSWER STATEMENT / Sentence. ie.. After weeks, John will have in his account.

3.) Identify the variables:

- Choose two letters for the variables

- Write what the two variables represent

} Defining the variable

ie: x: the # of hot dogs bought
y: the # of hamburgers bought

4.) Create your TWO equations from the text you circled or underlined:

- The equations will be in Standard Form or Slope-Intercept Form
 $Ax + By = C$ $y = mx + b$

(MOST OF THE TIME THE SYSTEM WILL BE IN STANDARD FORM)

5.) Choose a method to solve the system.

Graphing

- If equations are in $y = mx + b$ (slope-intercept) and the y-intercept $(b) \leq 10$
- If the problem involves inequalities $(<, >, \leq, \text{ or } \geq)$

Substitution

- If there is a variable without a number in front of it.
- If both equations are in $y = mx + b$ and the y-intercept $(b) < 10$.

ie.. $y = 2x + 3$
 $5x - 7y = 14$

Elimination

- If all the variables have coefficients and the eqns. are in $Ax + By = C$ (standard form)

(Most of the time you will use ELIMINATION to solve the system.)

6.) Check your answer. your solution

- Does it make sense ?

- Did you include the units of measure ?

} Ask yourself these two questions!

- Do NOT WRITE YOUR SOLUTION as an ordered pair, write it in your

Answer Statement / sentence. (Fill-in-the-blanks)