Homework Assignments

Chapter 7: Systems of Linear Equations & Inequalities

All homework is done in a notebook or on loose leaf. Unless problem is meant to be a "mental" problem, all work should be shown.

If assigned the alternate evens, do these problems:
2, 6, 10, 14, 18, 22, 26, 30, 34, 38, 42, 46, 50, 54, 58, 62, 66, 70, 74, 78, 82, 86, 90, 94, 98, 102, etc
.

Homework

- Section 7-1: pgs. 343-345: 2- 42 alternate evens
- Section 7-2: pgs. 349-351: 2- 46 alternate evens
- Section 7-3: pgs.356-359: 2- 46 alternate evens
- Section 7-4: pgs. 365-367: 2- 24 evens
- Matrices: pg. 361: 1-7 all
- Section 7-5: pgs. 373-375: 2-46 alternate evens
- Section 7-6: pgs. 380-383: 2- 46 alternate evens
- Chapter Test: pg. 390: all – Extra Credit on Test

Chapter Overview

The relationship between two **linear equations** is either:

1. They are **parallel** – don't intersect – the system of equations will have no solution or the empty set

2. They are **the same line** – intersect at every point on the line – the system of equations will have infinite solutions or all real number

3. They **intersect** – intersect in exactly one point – the system of equations will have **one ordered pair** as a solution and can be found in one of four methods:

    a. Graphing – graph by hand or on the calculator and observe the solution; use trace to find; look in the table; or use the calc menu and intersect function – this is the least reliable method; answers may not be exact.
    b. Substitution – solve for x or y in **the first** equation and substitute its value into **the second** equation to eliminate one variable. Substitute the value found for the first variable into either equation to find the value of the second variable. Or solve for x or y in **both** equations and set the solutions equal to each other. Gives an exact answer. Some equations are cumbersome to handle using this method (a lot of fractions). Remember the solution is an ordered pair. If your variables cancel each other out the lines are parallel (left with a false equality) or the same line (left with a true equality).
    c. Linear Combination / Elimination – Use the multiplication property of equality to translate one or both equations into a form where the x or y values have coefficients that are opposites. Add the two equations together to eliminate one variable. Then either substitute into either equation to solve for the other variable or repeat the process of linear combination/elimination for the opposite variable. Remember the solution is an ordered pair. If your variables cancel each other out the lines are parallel (left with a false equality) or the same line (left with a true equality).
    d. Matrices – Put equations in the form: ax + by = c, where a, b, and c are numbers of any kind. Using the calculator, use the coefficients of the variables as inputs for [A], a two by two matrix. Use the

solutions (Cs) as inputs for [B], a one by two matrix. Calculate $[A]^{-1}$ x [B] to find the values of x and y (x, y), the point of intersection.

4. **Linear Inequalities** – Shaded region bounded by the linear equation given
   a. $\leq$ or $\geq$ includes the boundary line – solid line
   b. < or > does not include the boundary line – broken line
   c. Once inequality is **put into slope intercept form:** > or $\geq$ will shade above the line; < or $\leq$ will shade below the line.

5. **Systems of Linear Inequalities**: The only way to solve these systems is by graphing and shading. Graph each inequality separately. Where the shaded regions overlap is the solution set.