3.4 Notes Linear Programming

Objective: To find maximum and minimum values. To solve problems with linear programming.

Linear programming:

Constraints:

Objective function:

Verticies:

Feasible region:

Steps to Linear Programming:

- identify constraints
 --- inequalities (2 or more)
- 2) write the objective function --- profit equation
- 3) graph the constraints
 - --- this will be a shaded region (usually in 1st Quadrant)
- 4) Identify vertex points
 - --- where the constraints (lines on the graph) Intersect
- 5) Plug the vertex points in to the objective function and look for the max or min value.

Ex: Suppose you want to buy some tapes and CDs. You can afford as many as 10 tapes or 7 CDs. You want at least 4 CDs and at least 10 hours of recorded music. Each tape holds about 45 minutes of music, and each CD holds about an hour.

1. Write a system of inequalities to model the problem (CONSTRAINTS and OBJECTIVE FUNCTION)

2. graph the system of inequalities (graphing calculator---see notes)

3. Check to see if the points satisfy the system. (4,7) (12,7) (7,6) (9,4) (10, 4) Graphing calculator notes:

To change the Y = to inequalities: APPS Inequalz Enter Enter ALPHA Soft keys (those 5 keys closest to the screen)

****MAKE SURE THE WINDOW IS SUITABLE FOR YOUR DATA (EVERY PROBLEM IS DIFFERENT, SO CHECK EACH PROBLEM)

Finding the shaded region and the vertex points: ALPHA F1 Ineq intersection

ALPHA F4 Then move cursor to intersection points