MAT 1053 - MODULE 9.2 PRE-CLASS WORK

myUTSA ID:

MODULE 9.2 - LINEAR PROGRAMMING

LEARNING OBJECTIVES

In this section, you will:

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- Define an objective function.
- Define constraint equations.
- Define feasible regions and determine corner points.
- Solve linear programming problems using a graph.

LINEAR PROGRAMMING

- State the definition of an objective function.
- State the definition of a feasible region.
- State the Fundamental Theorem of Linear Programming.

SOLVING A LINEAR PROGRAMMING PROBLEM GRAPHICALLY

How To... Solving a Linear Programming Problem Graphically.

MODULE 9.2 - CLASS NOTES

1. Using the 6 steps outlined, maximize the function P = 14x + 9y subject to the constraints:

 $x + y \le 9$ $3x + y \le 15$ $x \ge 0$ $y \ge 0$



2. A company makes two products. Product A requires 3 hours of manufacturing and 1 hour of assembly. Product B requires 4 hours of manufacturing and 2 hours of assembly. There are a total of 84 hours of manufacturing and 32 hours of assembly available. Using the 6 steps outlined to determine the production to maximize profit if the profit on product A is \$50 and the profit on product B is \$60.



3. A diet is to contain at least 2400 units of vitamins, 1800 units of minerals, and 1200 calories. Two foods, Food A and Food B are to be purchased. Each unit of Food A provides 50 units of vitamins, 30 units of minerals, and 10 calories. Each unit of Food B provides 20 units of vitamins, 20 units of minerals, and 40 calories. If Food A costs \$2 per unit and Food B cost \$1 per unit, how many units of food should be purchased to keep costs at a minimum?

