Oct. 27 Worksheet

1. Where can you find all of the possible solutions when graphing a linear inequality?

2. When you have a system of 2 inequalities, what is the area where the solutions are found called?

3. Given the following system of inequalities, answer the questions below.

$$2x + 3y \leq 18$$

$$x + y \geq 5$$

$$x \geq 0$$

$$y \geq 0$$

  a. Is the point (4, 3) in the solution region?

  b. Is the point (1, 6) in the solution region?

  c. Is the point (5, 1) in the solution region?

  d. Is the point (2, 2) in the solution region?

4. Find the maximum and minimum values of the objective function $z = 4x - 2y$, subject to the following constraints:

$$x + y \leq 6$$

$$2x + y \geq 4$$

$$x \geq 0$$

$$y \geq 0$$

Corner Points	Objective Function

5. A company manufactures two types of metal alloys, Alloy X and Alloy Y. Each kilogram of Alloy X requires 4 minutes of grinding and 2 minutes of polishing. Each kilogram of Alloy Y requires 3 minutes of grinding and 5 minutes of polishing. The factory has at most 180 minutes of grinding time available and at most 150 minutes of polishing time available each day. The cost to produce Alloy X is $6 per kg and the cost to produce Alloy Y is $8 per kg. The company must produce at least 10 kg of Alloy Y due to existing orders. The company wants to determine how many kilograms of each alloy to produce to **minimize the total production cost**.

	Number of units	Grinding (minutes/kg)	Polishing (minutes/kg)	Cost per kg
Alloy X				
Alloy Y				
Max. time				

Grinding _____

Polishing _____

Per contract _____

Objective Function _____