**Notes**

1. **Airlines** An airline with two types of airplanes, P1 and P2, has contracted with a tour group to provide accommodations for a minimum of 2000 first-class passengers, 1500 tourist passengers, and 2400 economy-class passengers. Airplane P1 costs $12,000 to operate and can accommodate 40 first-class passengers, 40 tourist, and 120 economy-class passengers, whereas airplane P2 costs $10,000 to operate and can accommodate 80 first-class, 30 tourist, and 40 economy-class passengers. How many of each type of airplane should be used to minimize the operating cost?
   1. Define the variables.
   2. Write the objective function for this situation.
   3. Write the inequalities (constraints) to describe the situation.
   4. Shade the feasible region and circle all of the corner points (ON the graph). Solve for any corner points that are not labeled and label them on the graph.



* 1. Using the corner points of your shaded region in **part d**, determine what combination of planes will minimize costs. Show all mathematical work.

1. **Maximizing storage** An office manager wants to buy filing cabinets. Cabinet X costs $100, requires 6 square feet of floor space, and has the storage capacity of 8 cubic feet. Cabinet Y costs $200, requires 8 square feet of floor space, and has the storage capacity of 12 cubic feet. No more than $1400 can be spent, and the office has room for no more than 72 square feet of cabinets. The office manager wants the maximum storage capacity within the limits imposed by funds and space. How many of each type of cabinet should be bought?
   1. Define the variables.
   2. Write the objective function.
   3. Write the inequalities (constraints) to describe the situation.
   4. Graph and shade the solution set (feasible region).



* 1. Find all corner points and label the coordinates on the graph.
  2. Write a statement indicating how many of each type of cabinet should be bought to maximize the storage capacity. Show your work.

1. Evergreen Company produces two types of paper, Recycled Blue and the Refreshed Yellow. The company will make at least 120 reams per day, but only has 515 labor hours available per day. It takes 4 hours to make a ream of the Recycled Blue and 5 hours to make a ream of the Refreshed Yellow. If the profit of each ream of Recycled Blue is $100 and profit of each ream of Refreshed Yellow is $125, find the maximum possible daily profit and the number of reams of the paper type that gives it.

Show all work related to solving this problem. A graph is provided below.

