**Notes**

1. **Table and Chairs** A man and his daughter manufacture unfinished tables and chairs. Each table requires 3 hours of sawing and 1 hour of assembly. Each chair requires 2 hours of sawing and 2 hours of assembly. The two of them can put in up to 12 hours of sawing and 8 hours of assembly work each day. They earn $8 for each table and $10 for each chair they make. How many tables and chairs should they make each day in order to maximize profit?

a. Define the variables.

b. Write the objective function.

c. Write the inequalities that describe the situation.

d. Graph and shade the feasible region. Label all of the corner points ON the graph.



e. Determine the combination of tables and chairs they should make in order to maximize profit. **Show your work.**

**Linear Programming Summary**

When solving a linear programming question, **list** the procedure that you would follow in order to come up with a solution.

2. Carmella and Walt produce handmade shawls and afghans. They spin the yarn, dye it, and then weave it. A shawl requires 1 hour of spinning, 1 hour of dyeing, and 1 hour of weaving. An afghan needs 2 hours of spinning, 1 hour of dyeing, and 4 hours of weaving. Together, they spend at most 8 hours spinning, 6 hours dyeing, and 14 hours weaving daily. They make $10 profit per shawl and $20 profit per afghan. Determine the combination of afghans and shawls that will maximize their profit. Below is a graph that may be used to answer this question. **Show all work.**

* 1. Define the variables.
  2. Write the objective function.
  3. Write the inequalities (constraints) to describe the situation. (Hint: There should be 5 inequalities.)
  4. Graph and shade the solution set (feasible region). Find all corner points and **label** the coordinates on the graph. (Hint: Be sure to graph accurately. There should be 5 corner points)



* 1. Determine the final answer. Show all mathematical work. Use a complete sentence to answer this question.

3. **Pottery** A potter is making cups and plates. It takes her 6 minutes to make a cup and 3 minutes to make a plate. Each cup uses 3/4 lb. of clay and each plate uses one lb. of clay. She has 20 hours available for making the cups and plates and has 250 lbs. of clay on hand. She makes a profit of $2 on each cup and $1.50 on each plate. How many cups and how many plates should she make in order to maximize her profit?

* + - * 1. Define the variables.
        2. Write the objective function.
        3. Write the inequalities that describe the situation.
        4. Graph and shade the feasible region. Find all corner points and label the coordinates on the graph.



e. Determine the combination of cups and plates they should make in order to maximize profit. **Show your work.**