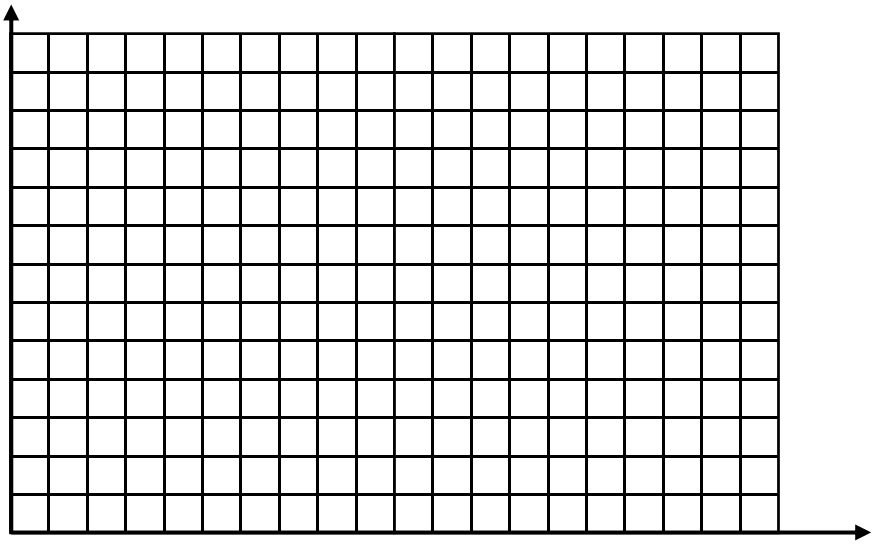
W-up Week 4 Friday  Linear Programming  Name_____

Graph ALL of the following on the same grid. Shade only the solution for the system of inequalities. (The portion where the shading overlaps for all four conditions.) Do the rest of your w-up in your notebook. (p160/10)

$$\begin{cases} x + y \leq 8 \\ 2x + y \leq 10 \\ x \geq 0 \\ y \geq 0 \end{cases}$$



Notes:

Finding corner points:

| Corner point | Objective function: 100x+40y=N | Objective function value |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

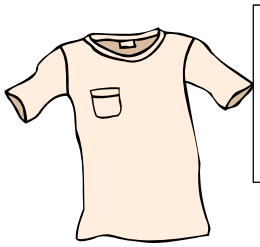
The maximum value is:

Using Linear Programming to Maximize Profit

Adv Algebra 2, p.159 problem 2 Name_____

Business: You are screen-printing T-shirts and sweatshirts to sell at the Polk County Blues Festival and are working with the following constraints.

- You have at most 20 hours to make shirts.
- You want to spend no more than $600 on supplies.
- You want to have at least 50 items to sell.



Color T-Shirt
- Takes 10 minutes to make
- Supplies cost $4
- Profit $6

Sweatshirt
- Takes 30 minutes to make
- Supplies cost $20
- Profit $20

How many T-shirts and how many sweatshirts should you make to maximize your profit?
How much is the maximum profit?

1. Organize the information in a table.

| | T-Shirts, x | Sweatshirts, y | Total |
|---|---|---|---|
| Minutes | | | |
| Number | | | |
| Cost | | | |
| Profit | | | |

2. Write the constraints and objective function.
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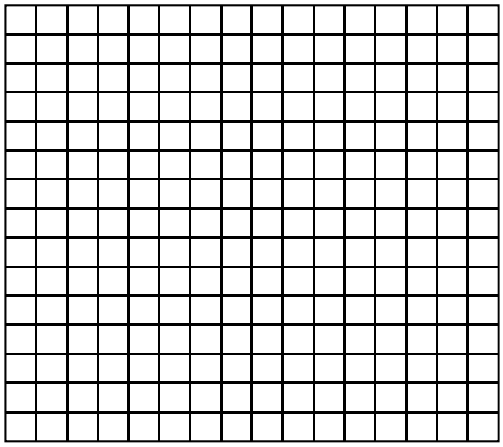
   - 

Objective Function:

3. Graph the constraints



4. Find the coordinates of each vertex.

5. Test the coordinates of each vertex in the objective function

6. Answer the questions:

Using Linear Programming to Maximize Profit