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Name: _____

MTH U115

Applications of Algebra

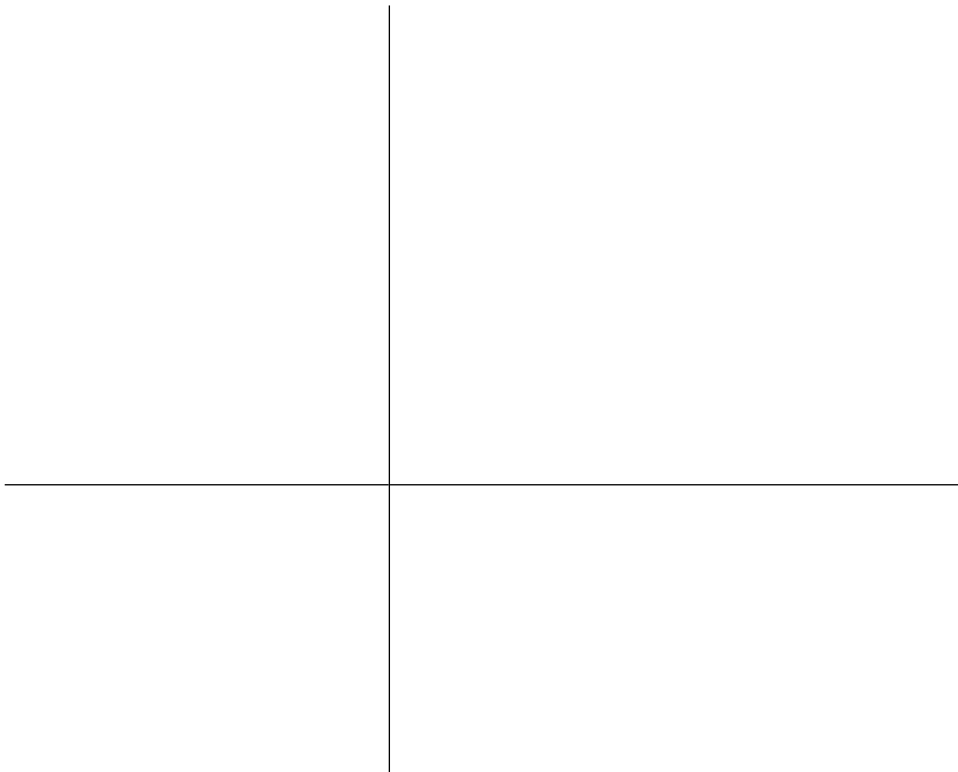
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QUIZ 2

Instructions: Put your name in the blanks above. Put your final answers to each question in the designated spaces on these pages. Show your work—if there is not enough room, use another sheet.

- (1) Solve the following system of linear inequalities. Shade the corresponding region, and indicate **the coordinates of the corner points** of the region.

$$\begin{array}{ll} x \leq 6, & y \leq 5, \\ x \geq 0, & y \geq 0, \\ x + 2y \geq 6, & x - y \geq 0 \end{array}$$



- (2) **SET UP** a linear program to solve the following problem. Be sure to identify the variables, **ALL** the constraints, and the objective function. **DO NOT SOLVE**.

A snowmobile company sells two types of snowmobiles: Basic model and Luxury model. Every basic snowmobile takes 18 hours and 6 workers to assemble, while every luxury snowmobile takes 24 hours and 9 workers to assemble. There are at most 2,000 hours available in this production cycle, and at least 40 workers must be working at all times, in order to keep the assembly line running. A minimum of 100 basic snowmobiles must be made in order to fill the orders. At most 110 luxury snowmobiles can be made with present capacity. The profit on each luxury snowmobiles is \$750 and the profit on each basic snowmobiles is \$500. How many of each type of car must be sold in order to maximize profit?

- Variables:

- Constraints:

- Objective: