

Show all work.

1. **(7 points)** Formulate a linear programming problem describing the following question. *You do not need to solve the problem.* Clearly label what each of your variables represents, and identify the constraints and an objective function.

You are renting buses and vans to transport high school students on a trip. Each bus can transport 40 students, requires 3 chaperones, and costs \$1200 to rent. Each van can transport 8 students, requires one chaperone, and costs \$100 to rent. You must have enough transport for all 400 students in the class, and can use no more than 36 chaperones. How many vehicles of each type should you rent to minimize transportation costs?

2. **(13 points)** Find the minimum and maximum values of $z = 5x + 5y$ subject to the conditions

$$\begin{cases} 2x + y \leq 10 \\ x + 2y \leq 8 \\ x, y \geq 0 \end{cases} \text{ Clearly indicate which is which.}$$

