1. A company executive must determine the optimal mix of radio and tv ads to purchase in a month. Each radio ad costs $1500, and each tv ad costs $2000. There must be a combined total of at least 1200 ads. Also, each radio ad is expected to reach 1000 families and each tv ad is expected to reach 1500 families. It is required that at least 1,500,000 families be reaches. How much of each type of ad should be purchased to minimize total cost?

Write down the variables in words: [Hint: What quantities are you trying to determine?]
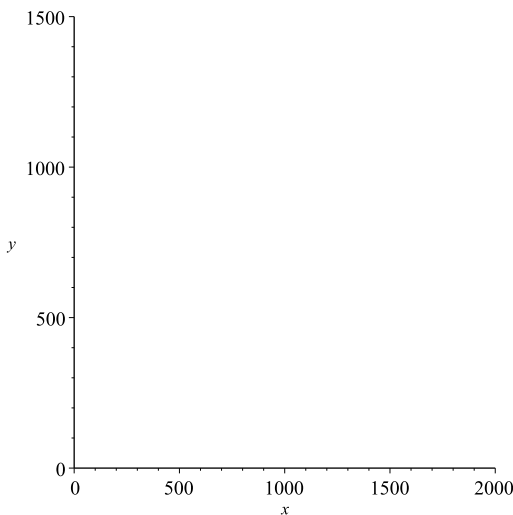
$x \ =$

$y \ =$

Write down an expression for the total cost: $C =$

Verbal description →	x	y	Total Restriction
total ads			
families reached			

OBJECTIVE: Minimize

CONSTRAINTS: Subject to

$$x, y \ \geq \ 0$$

2. A company makes bicycles and motorbikes, each of which must pass through departments I and II. Department I (Assembly) has at most 600 hours, and department II(Inspection) has at most 330 hours available. Each bicycle requires $\frac{3}{4}$ hours of time in department I and $\frac{1}{2}$ hours of time in department II. Each motorbike requires 2 hours of time in department I and 1 hour of time in department II. They make \$320 profit on bicycles and \$300 profit on motorbikes. How many bicycles and motorbikes should they make to maximize profit?