1. A produce wholesaler determines that it takes 1 hour to sort and pack a crate of peaches and 2 hours to sort and pack a crate of tomatoes. There are also 10 labor hours per day. The crate of peaches weighs 60 pounds and the crate of tomatoes weighs 30 pounds. He can ship no more than a total of 420 pounds per day. He earns a profit of \$20 and \$30 per crate of peaches and tomatoes, respectively. How many crates of each should be sorted and shipped to maximize profit?

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

x = the number of crates of peaches

y = the number of crates of tomatoes

Write down an expression for the total profit: $P = 20x + 30y$

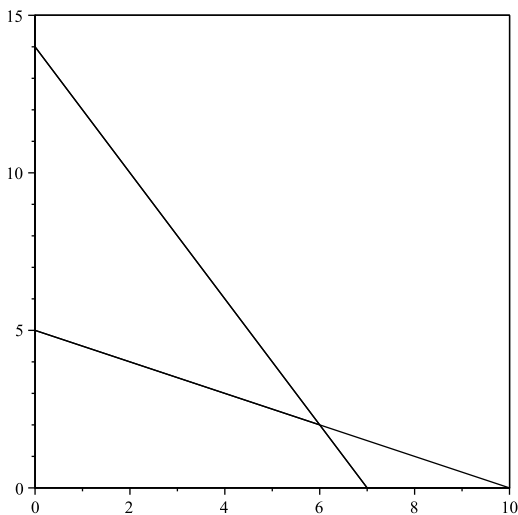|	Peaches x	Tomatoes y	Total Restriction
Labor (hours)	$1x$	$2y$	≤ 10
Shipping (pounds)	$60x$	$30y$	≤ 420

OBJECTIVE: Maximize $P = 20x + 30y$

CONSTRAINTS: Subject to

$$x + 2y \leq 10$$
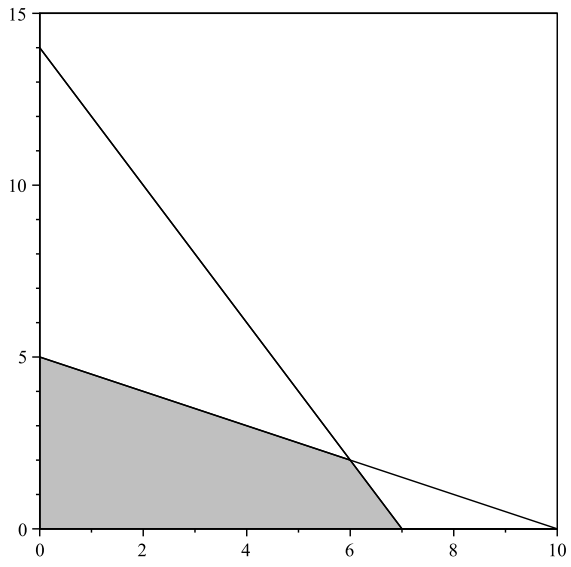$$60x + 30y \leq 420$$
$$x, y \geq 0$$

General Linear Program Problem: Maximize (or minimize) $C = ax + by$ subject to $\begin{cases} \\ \\ \end{cases}$ List of Constraints

Steps for Solving Linear Programming Problems

Minimize $C = 3x + 5y$ subject to

$$
\begin{array}{rcl}
2x + y & \geq & 4 \\
3x + 4y & \geq & 12 \\
y & \geq & 1 \\
x & \geq & 0
\end{array}
$$