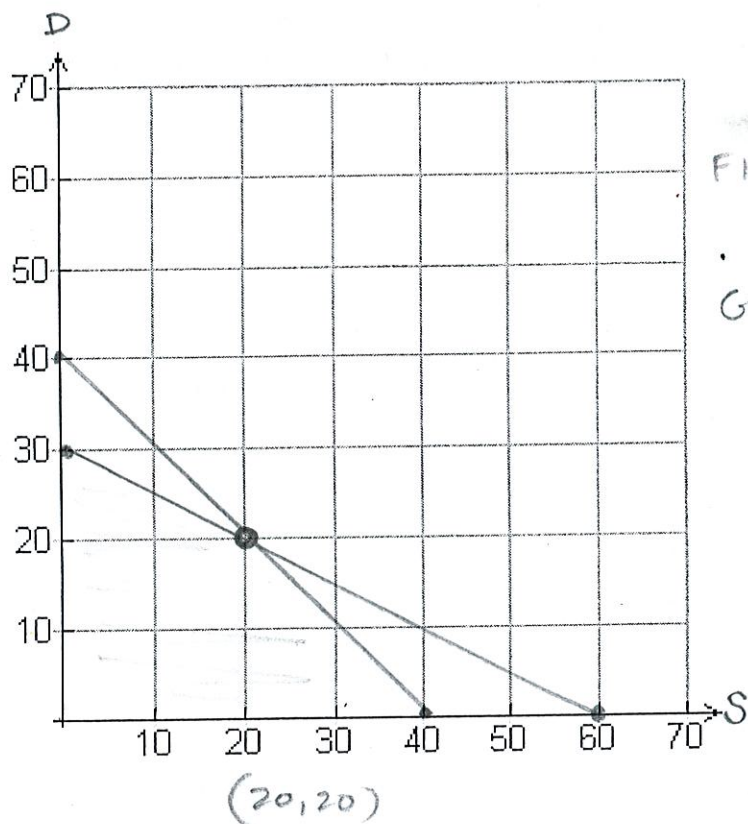


2. Mike's Famous Toy Trucks manufactures two kinds of two trucks—a standard version and a deluxe model. In the manufacturing process, each standard model requires two hours of grinding and two hours of finishing; each deluxe model requires two hours of grinding and four hours of finishing. The company employs two grinders and three finishers, each of whom works 40 hours per week. Each standard model brings the company a profit of \$3.00 and each deluxe model brings a profit of \$4.00. Assuming that every truck made will be sold, how many of each should be made to maximize profits?



$$P = 3S + 4D$$

CONSTRAINTS:

FINISHER:

$$2S + 4D \leq 120$$

GRINDER:

$$2S + 2D \leq 80$$

$$S \geq 0 \text{ \& } D \geq 0$$

$$\begin{bmatrix} 2 & 4 \\ 2 & 2 \end{bmatrix} \cdot \begin{bmatrix} S \\ D \end{bmatrix} = \begin{bmatrix} 120 \\ 80 \end{bmatrix}$$

$$\begin{bmatrix} S \\ D \end{bmatrix} = \begin{bmatrix} 20 \\ 20 \end{bmatrix}$$

$$P = 3(40) + 0 = 120$$

$$P = 3(20) + 4(20) = 140 \text{ max}$$

$$P = 3(0) + 4(30) = 120$$

20 STANDARD
20 DELUXE