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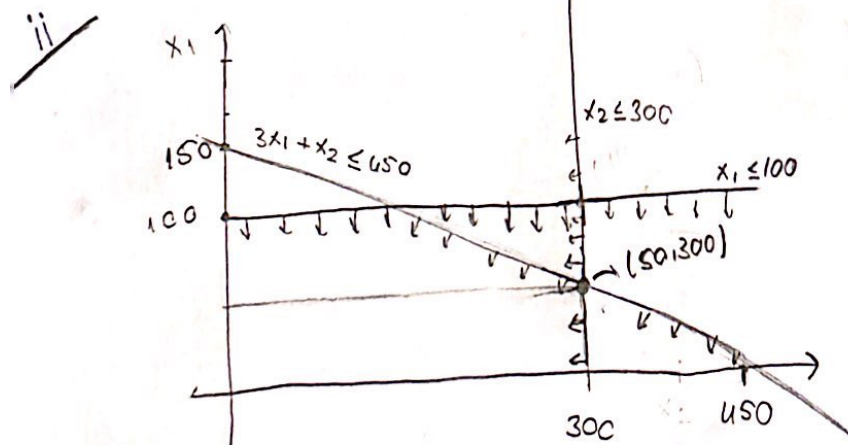
→ Wild west produces two types of cowboy hats. A type 1 hat requires three times as much labor time as a type 2. If the all available labor time is dedicated to type 2, the company can produce a total of 450 type 2 hats a day. The market limits for the two types are 100 and 300 hats per day for Type 1 and Type 2, respectively. The profit is \$8 per Type 1 \$5 per Type 2 hat. Determine the number of hats of each type that maximize

- Build the mathematical model
- solve the problem graph

Type 1 :  $x_1$   
Type 2 :  $x_2$

$$\begin{aligned} 3x_1 + x_2 &\leq 450 \\ x_1 &\leq 100 \\ x_2 &\leq 300 \end{aligned}$$

maximize:  $Z = 8x_1 + 5x_2$



$$\begin{aligned} 3x_1 + x_2 &= 450 \\ x_2 &= 300 \\ x_1 &= 50 \end{aligned}$$

$$\begin{aligned} 8(50) + 5(300) &= \\ 400 + 1500 &= 1900 \end{aligned}$$

max profit : 1900