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Q1) Wild west produces 2 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 alone, the company can produce a total of 450 Type 2 hats only. The market limits 100 and 300. Profit 8 and 5 dollar. Maximize profit

		Labor Time	Profit (
Type 1 $\rightarrow X_1$	$X_1$	3	8
Type 2 $\rightarrow X_2$	$X_2$	1	5
		450	

$$X_1 \leq 100$$

$$X_2 \leq 300$$

i)  $Z = 8X_1 + 5X_2$  (max)  $\rightarrow$  objective func.

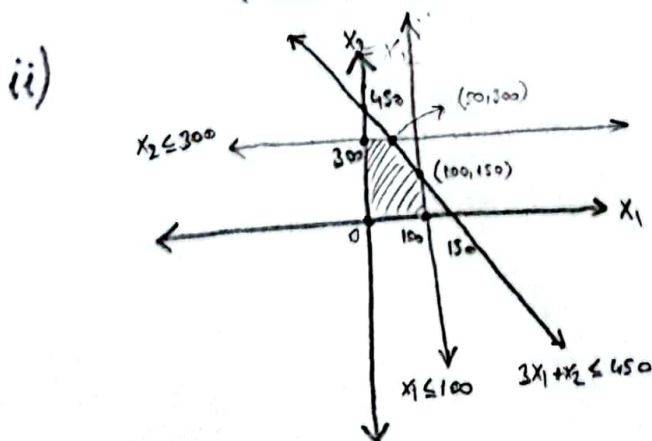
Constraints func.

$$3X_1 + X_2 \leq 450$$

$$X_1 \leq 100$$

$$X_2 \leq 300$$

$$X_1 \geq 0, X_2 \geq 0$$



Corner Points	$Z = 8X_1 + 5X_2$
(0,0)	0
(0,300)	1500
(100,0)	800
(100,150)	1550
(50,300)	1900 *

Type 1  $\rightarrow 50$   
Type 2  $\rightarrow 300$  } max profit 1900