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Q1 Wild West A type 1 hat requires 3 times as much labor time as Type 2

Type 2 alone → 450 a day

Limits → 100, 300 hats per day

Profit → 8$, 5$

Determine the number of hats of each type that would maximize profit.

Solution Decision Variables: x_1 → number of hats in Type 1

x_2 → number of hats in Type 2

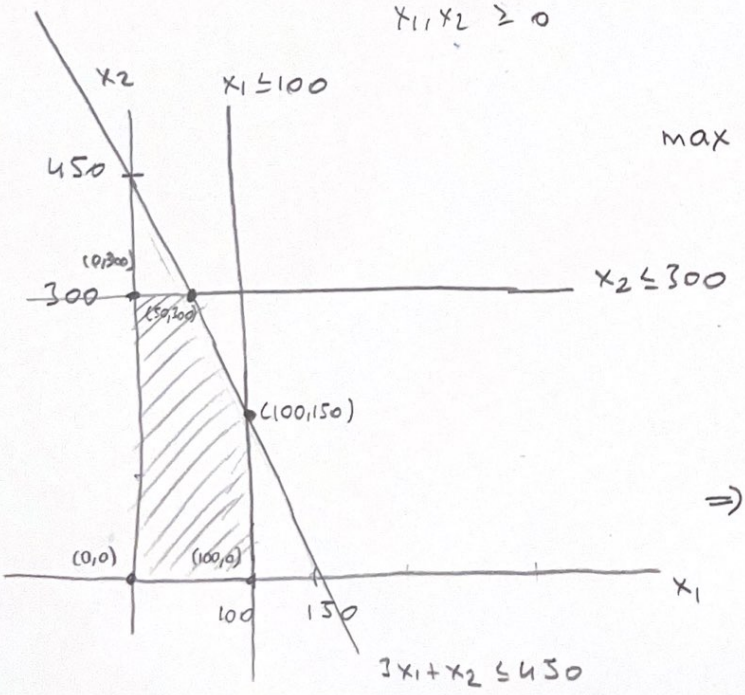
Subj. Function: $8x_1 + 5x_2 = z$ (max)

constraints: $3x_1 + x_2 \leq 450$

$x_1 \leq 100$

$x_2 \leq 300$

$x_1, x_2 \geq 0$



	coordinates	$8x_1 + 5x_2$
max →	(50, 300)	1900
	(100, 150)	1550
	(0, 300)	1500
	(100, 0)	800
	(0, 0)	0

⇒ 50 number of hats in Type 1 and 300 number of hats in Type 2 will maximize profit.