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EE3033 QUIZ 1

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Burak

Question 1

i) Build the mathematical model of the problem.

Desicion variables:

X_1 : Type 1

X_2 : Type 2

Constraints:

$$3X_1 + X_2 \leq 450$$
$$X_1 \leq 100$$
$$X_2 \leq 300$$
$$X_1, X_2 \geq 0$$

Objective function: Maximize profit

Maximize

$$\text{profit} = 8X_1 + 5X_2$$

(X_1, X_2)		Profit	
$X_1 = 100$	$X_2 = 300$	2300	not feasible
$X_1 = 100$	$X_2 = 150$	1550	feasible
$X_1 = 50$	$X_2 = 300$	1900	feasible → optimum

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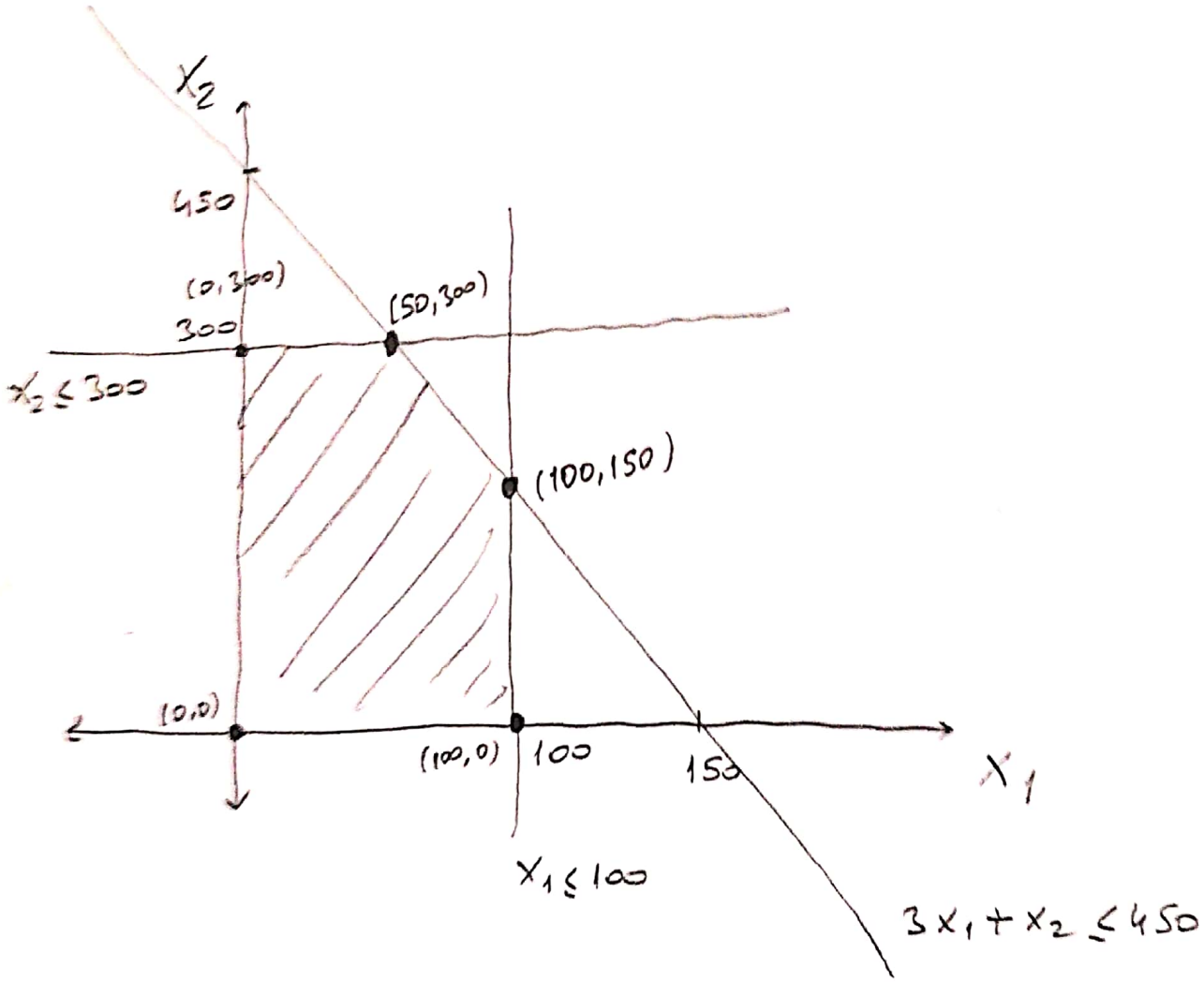
ii) Solve the problem graphically.



(X_1, X_2)	Profit	
(0, 0) →	0	Feasible
(100, 0) →	800	Feasible
(0, 300) →	1500	Feasible
(100, 150) →	1550	Feasible
(50, 300) →	1900	Feasible → Optimum

↳ optimum maximum value.