I am aware that any forms of cheating in this exam will result in zero grade and a disciplinary investigation. I accept all rules and regulations regarding online exams. I give permission for the processing of my personal data as stated in the clarification Text provided on the Faculty of Engineering website

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(Q1)

Type 1 → x_1 → ≤100/per day

Type 2 → x_2 → ≤300/per day

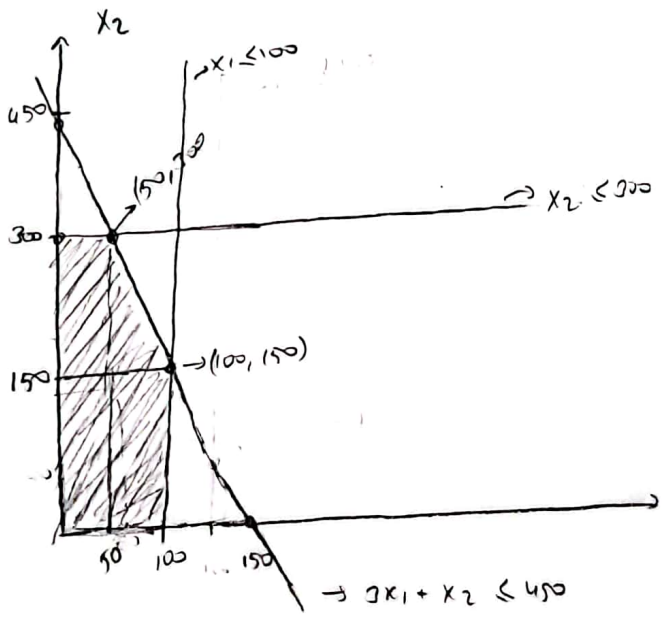
$3x_1 = x_2$

$3x_1 + x_2 \leq 450$

$x_1, x_2 \in Z^+$

$x_1 \leq 100, \; x_2 \leq 300$

$Z = 8 \cdot x_1 + 5 \cdot x_2$ → maximize



- Will West produces two types of cowboy hats. A Type 1 requires three times as much labor time as 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 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 \$8 per Type 1 hat and \$5 per Type 2 hat. Determine the number of hats of each type that would maximize profit.

i. Build the mathematical model of the problem.

ii. Solve the problem graphically.

x_1	x_2	$Z = 8x_1 + 5x_2$
100	150	1550 \$
50	300	1900 \$