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# IE3035 QUIZ 1

Q1) 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 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 is $8 per Type 1 hat and $5 per Type 2 hat. Determine the number of hats of each type that would max profit.

i. Build the mathematical model of the problem.

ii. Solve the problem graphically.

i) $x \rightarrow$ labor

$3x_1 + x_2 \leq 450$

$x_1 \leq 100$

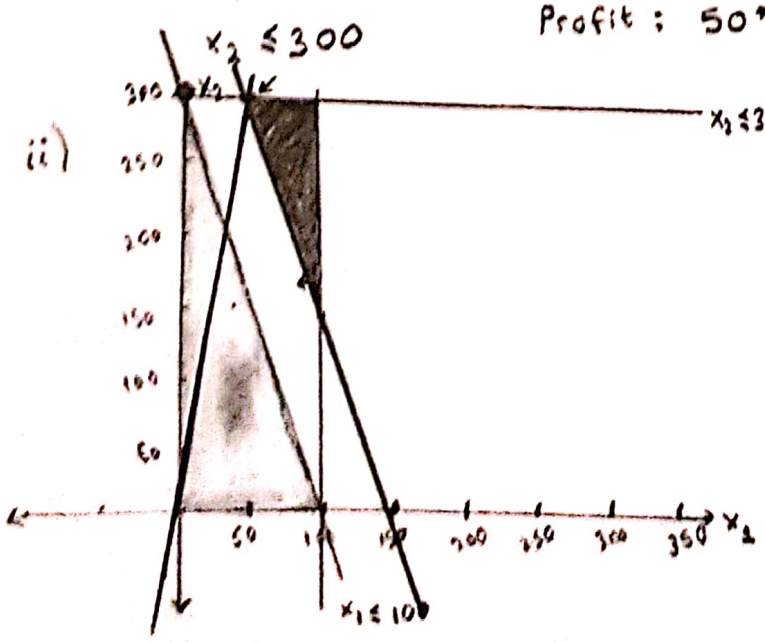
$x_2 \leq 300$

$x_1 = 50 \quad x_2 = 300$

Profit: $50 * 8 + 300 * 5 = 400 + 1500$

$= 1900\$$

ii)




$x_1 = 50 \quad x_2 = 300$