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IE 3035 - Quiz 1
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: Question 1 : Wild West produces 2 types of cowboy hats. A type 1 hat requires 3 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 & 300 hats/per day for Type 1 & Type 2 respectively. The profit is 8 $ per Type 1 hat & 5 $ per type 2 hat. Determine the # of hats of each type that would maximize profit.

I. Build mathimatical model of the problem
II. Solve the problem graphically.

: Solution 1 : X_1 = type 1 hat #
X_2 = type 2 hat #

$z = 8 \cdot X_1 + 5 \cdot X_2$) profit

total labor time $\Rightarrow$ $X_1 \leq 100$, $X_2 \leq 300$, $X_1 = 3X_2$

all time $X_2 = 450$

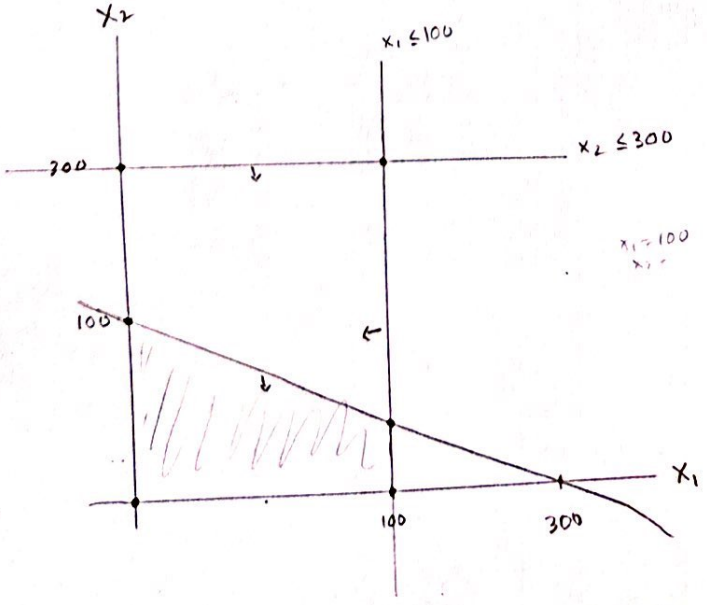
$\frac{X_1}{3} = 450$

$X_1 = 3X_2$

$X_2 = 450$

$4X_2 = 400$
$X_2 = 100$

$X_1 \rightarrow 1$
$X_2 \rightarrow 3$
$X_2 \rightarrow 450$



for points

X_1	X_2	sol
100	0	800
~~0~~	~~300~~	~~1500~~
0	0	0
0	100	500
100		