Hasan Tank Yumbul IE3035 Quiz 1 April 26 2023

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Q1. Wild West produces two types of cowboy hats. A type 1 hat requires 3 times as much as 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 respectively. The profit is $8 and $5 respectively. Determine the number of hats of each type that would max the profit.

I) Build the mathematical model

II) Solve the problem graphically

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Q1.

I) x_1 = Type 1

x_2 = Type 2

$z = 8x_1 + 5x_2$ (maximize)

$= 8 \cdot 50 + 5 \cdot 300$

$= 1900$

$x_1 \leq 100$

$x_2 \leq 300$

$3x_1 + x_2 \leq 450$

x_1	x_2
0	450
150	0