"I am aware that any forms of cheating in this exam will result in a zero grade and 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."

Abdelkrim Zeblah Timer

April 26, 2023

150119 657

Question: Wild west Plains 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 type2 alone, the company can produce a total 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 maximize profit

I. Build the math. model for the Problem

II. Solve the problem graphically.

Q1/

Abdulkarim Tolha Ahmed | 150119657

math:

A Type	B Type
X_1	X_2
8 dollar	5 dollar

total day = 450

math model

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

64
25
+
89

max profit $= 8X_1 + 5X_2 = 800 + 1500$
$= \$2300$