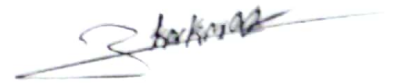


150 119623

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.



Question 1

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 maximize profit.

- i. Build mathematical model of the problem.
- ii. Solve the problem graphically.

Answer

- i. Let's say Type 1 hat is x , Type 2 hat is y
 x has 3 times labor time so, when they produce one x they will have $3y$.
 if y alone 450 hats a day. For time
 $y_{\text{produce}} = 3x_{\text{produce}}$ (if they alone)
 450 hat 150 hat
 Type 1 75, Type 2 225 will maximize profit.
 If they produced together, producing cant will be half and 225 hat 2, 75 hat 1 will be provided.