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

Furkan Bozkurt

F.B.

1-) Wild west produces two types of cowboy hats A Type 1 hat requiring three times as much labor time as at 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 Type1 and Type2, respectively. The profit is \$8 per Type1 hat and \$5 per Type2 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

i. $x_1 =$ daily number of type 1 hat
$x_2 =$ daily number of type 2 hat

	limit	
x_1	100	\$8
x_2	300	\$5

max 450

maximize $z = 8x_1 + 5x_2$

$3x_1 + x_2 \leq 450$

$x_1 \leq 100$

$x_2 \leq 300$

$x_1, x_2 \geq 0$

x_1	150	0
x_2	0	450
x_1, x_2		

t iii, Now

$3x_1 + x_2 = 450$

Put, $x_2 = 150$

$3x_1 = 300$

$x_1 = 100$

$2 \times 75 + 1 \times 300$

$= 2100 \ \$$