Q1 Cem Anorol 150119761

Wild west produces two types of cowboy hats. A type 1 hat requires three times as much labor time as type 2. If the all available labor time is dedicated to Type2 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 numbers of hats of each type that would maximize profit.

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

Q-i.

X_1: type 1 hats produced
X_2: type 2 hats produced

$$3X_1 + X_2 \leq 450$$

$$X_1 \leq 100$$

$$X_2 \leq 300$$

$$X_1, X_2 \geq 0$$

$$Z = 8X_1 + 5X_2$$

↓ maximize

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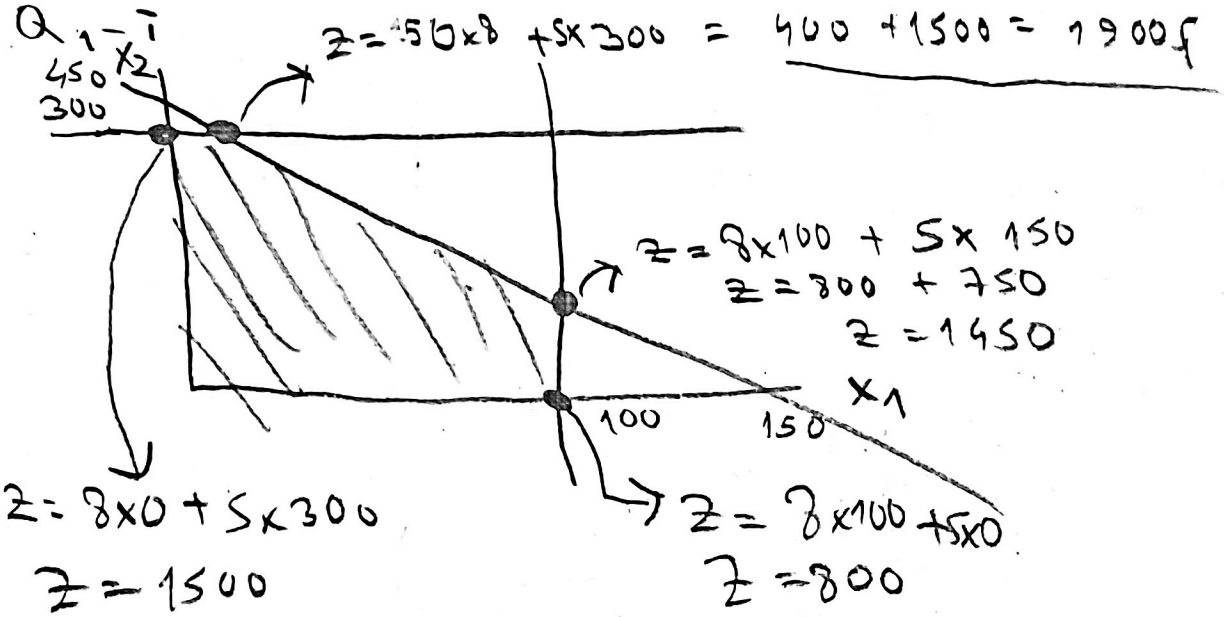

Solution = $X_2 = 300$

$X_1 = 50$

Max profit = 1900 $

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