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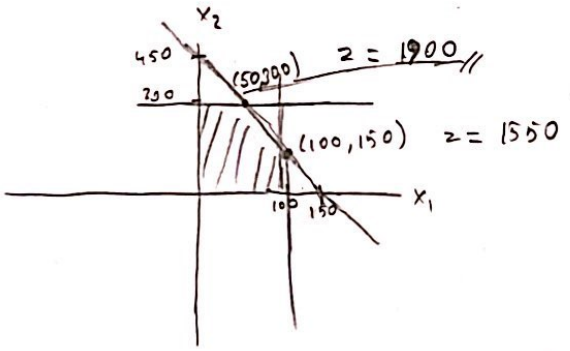
1. Wild West produces two types of cowboy hats. A type 1 requires three times as much labor time as a type 2. If the all available labor time is dedicated to Type 2 alone, the company can produce a total of 450 type 2 hats a day. The market limits for the two types are 100 and 300 hats per day for Type 1 and Type 2, respectively. The profit is 8$ per Type 1 and 5$ per Type 2 hat. Determine the number of hats of each type that would maximize profit.

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

x_1 = Type 1 hat
x_2 = Type 2 hat

$$z = 8x_1 + 5x_2$$

$$3x_1 + x_2 \leq 450$$
$$x_1 \leq 100$$
$$x_2 \leq 300$$



optimal numbers for Type 1 hat and Type 2 hat are 50 and 300 hats.

Max profit is $1900.