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Question -1

Wild West produces two types of cowboy hats. A type 1 hat require 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 $8 per Type 1 and $5 per Type 2 hat. Determine the number of hats type that would maximize profit.

i. Build math problem
ii. Solve the problem graphically

x_1 = # of Type 1 hats
x_2 = # of Type 2 hats

Maximize Z: $3x_1 = x_2$

$x_2 \leq 450$

$x_1 + x_2 \leq 400$

$x_1 \leq 100$
$x_2 \leq 300$

$x_1 = 100$
$x_2 = 300$

$x_1 \cdot \$8 = 800\$$
100

$x_2 \ \$5 = 1500\$$
300

Total Profit = 2300 $