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1) Wild West produces two types of cowboy hats. A type 1 hat requires three times as much time as a type 2. If the all available labor time is dedicated to type 2 alone, the company produce a total 450 type 2 hats a day. Market limits for the two types are 100 and 300 hats per day for type 1 and type 2. Profit \$18 per type 1 and \$15 type 2. Determine max profit

- i. Build mathematical model
- ii. Solve the graphical model

i) x_1 = daily of number of type 1 hats
 x_2 = daily of number of type 2 hats

$$\text{maximize} = 8x_1 + 5x_2$$

$$\text{st} = 2x_1 + x_2 \leq 450$$

$$x_1 \leq 100$$

$$x_2 \leq 300$$

$$\text{Optimum} = x_1 = 150 \text{ type 1}$$

$$x_2 = 300 \text{ type 2}$$

$$8x_1 + 5x_2 = 8(100) + 5(300) = 800 + 1500 = 2300 \$$$

