① Find the maximum and minimum values of the objective function given by $C = 7x + 3y$

$C = 7(0) + 3(4) = 12$

$C = 12$

$C = 7(2) + 3(6) = 32$

(2,6)

(0,4)

(0,0)     (5,0)

$C = 7(0) + 3(0)$

$C = 0$
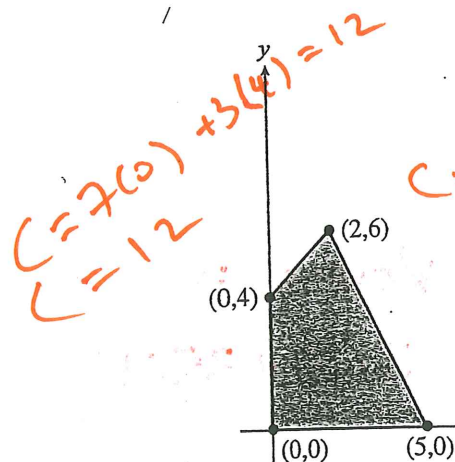
$C = 7(5) + 3(0) = 35$

Min C = 0
@ (0,0)

Max C = 35
@ (5,0)

**Define your variables.**

**② Write all inequalities in order to graph on Desmos to find vertices.** **Also write cost/revenue equation.**

A parkade can fit at most 100 cars and trucks on its lot. A car covers 100 sq ft, and a truck 200 sq ft of lot space of 12 000 sq ft. It charges $20 per car and $35 per truck to park these vehicles each week. How many of each vehicle will bring in maximum revenue?

**Define variables:** $C = \#$ cars    $T = \#$ trucks

① $C + T \leq 100$

**Revenue = $20C + 35T$**

② $100C + 200T \leq 12,000$

③ $C \geq 0$

④ $T \geq 0$

Fertilizer for a lawn comes in 2 brands as follows:

|  | Brand A (kg per bag) | Brand B (kg per bag) |
|---|---|---|
| Nitrogen | 30 | 20 |
| Phosphoric acid | 2 | 4 |
| Potash | 1 | 4 |

-A lawn needs at least 120 kg nitrogen, at least 16 kg of phosphoric acid, and at least 12 kg of potash. Brand A costs $22 a bag and brand B $18 per bag. How many bags of each brand should be used to minimize the cost? What is the minimum cost?

$A = \#$ bags of A    $B = \#$ bags of B

① $30A + 20B \geq 120$

**Cost $= 22A + 18B$**

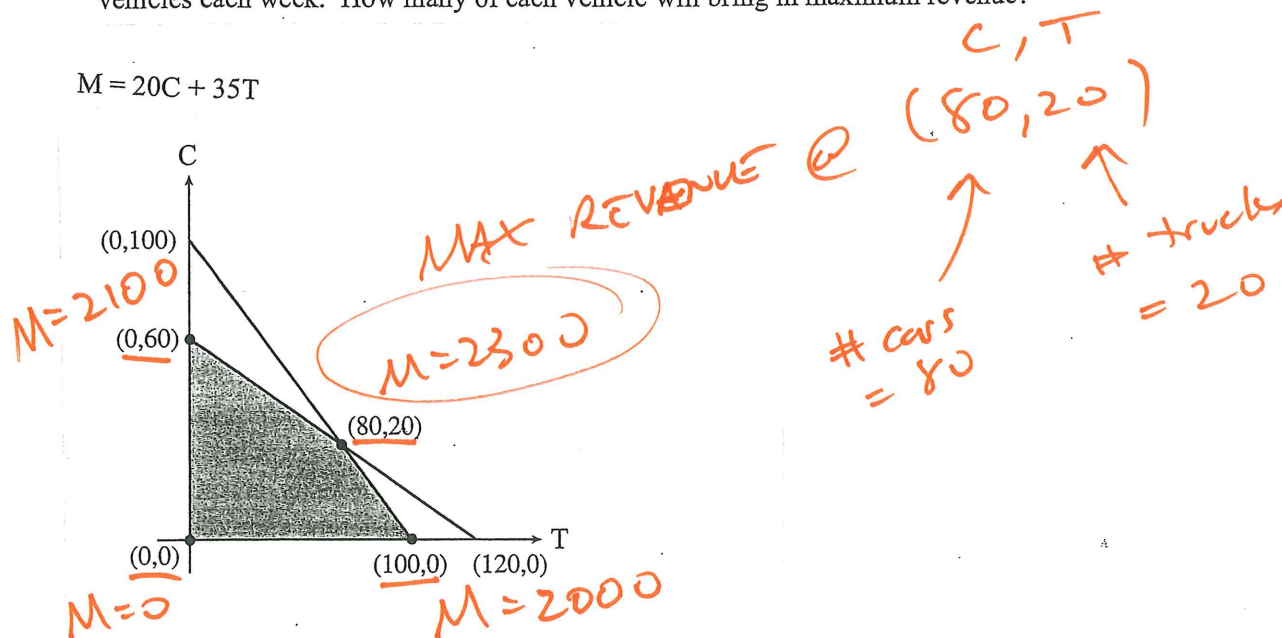② $2A + 4B \geq 16$

③ $1A + 4B \geq 12$

④ $A \geq 0$

⑤ $B \geq 0$

## ③ Use graph to answer question

A parkade can fit at most 100 cars and trucks on its lot. A car covers 100 sq ft, and a truck 200 sq ft of lot space of 12 000 sq ft. It charges $20 per car and $35 per truck to park these vehicles each week. How many of each vehicle will bring in maximum revenue?

$M = 20C + 35T$

MAX REVENUE @ $(80, 20)$ C,T

$M = 2300$

# cars = 80

# trucks = 20

$M = 2100$

$M = 0$

$M = 2000$

(0,100)

(0,60)

(80,20)

(0,0)   (100,0)   (120,0)

C

T

Fertilizer for a lawn comes in 2 brands as follows:

|  | Brand A (kg per bag) | Brand B (kg per bag) |
|---|---|---|
| Nitrogen | 30 | 20 |
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| Potash | 1 | 4 |

A lawn needs at least 120 kg nitrogen, at least 16 kg of phosphoric acid, and at least 12 kg of potash. Brand A costs $22 a bag and brand B $18 per bag. How many bags of each brand should be used to minimize the cost? What is the minimum cost? $= 98$ @ $(2, 3)$   A, B

2 bags of Brand A     3 bags of Brand B

$M = 22A + 18B$

$M = 108$

$M = 98$

$M = 124$

MIN

$M = 264$

(0,6)

(0,4)

(0,3)

(2,3)

(4,2)

(0,0)   (4,0)   (8,0)   (12,0)

B

A