

12 hrs

8 unit

$$x + 3y = 12$$

2cm to 2unit on x axis

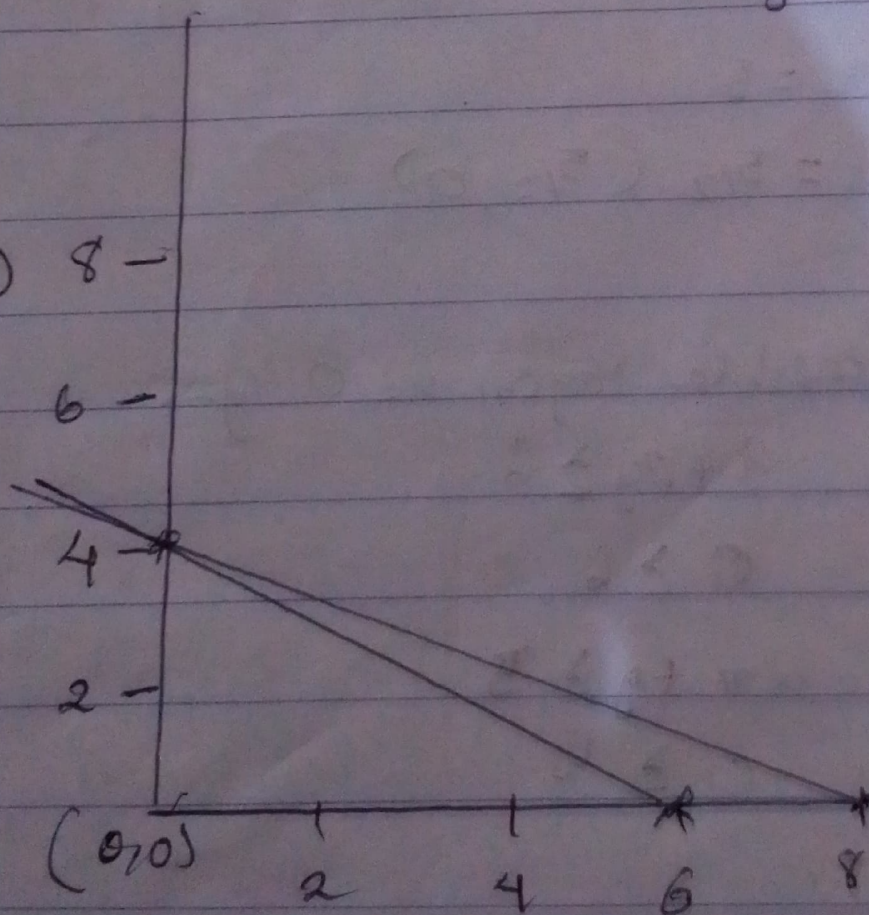
2unit

2cm to ~~unit~~ 8 on y axis

(OA)

(8,0) 8 -

$x + 2y = 8$ 6 -



Ext points

$$O = (0, 0)$$

$$A = (0, 3)$$

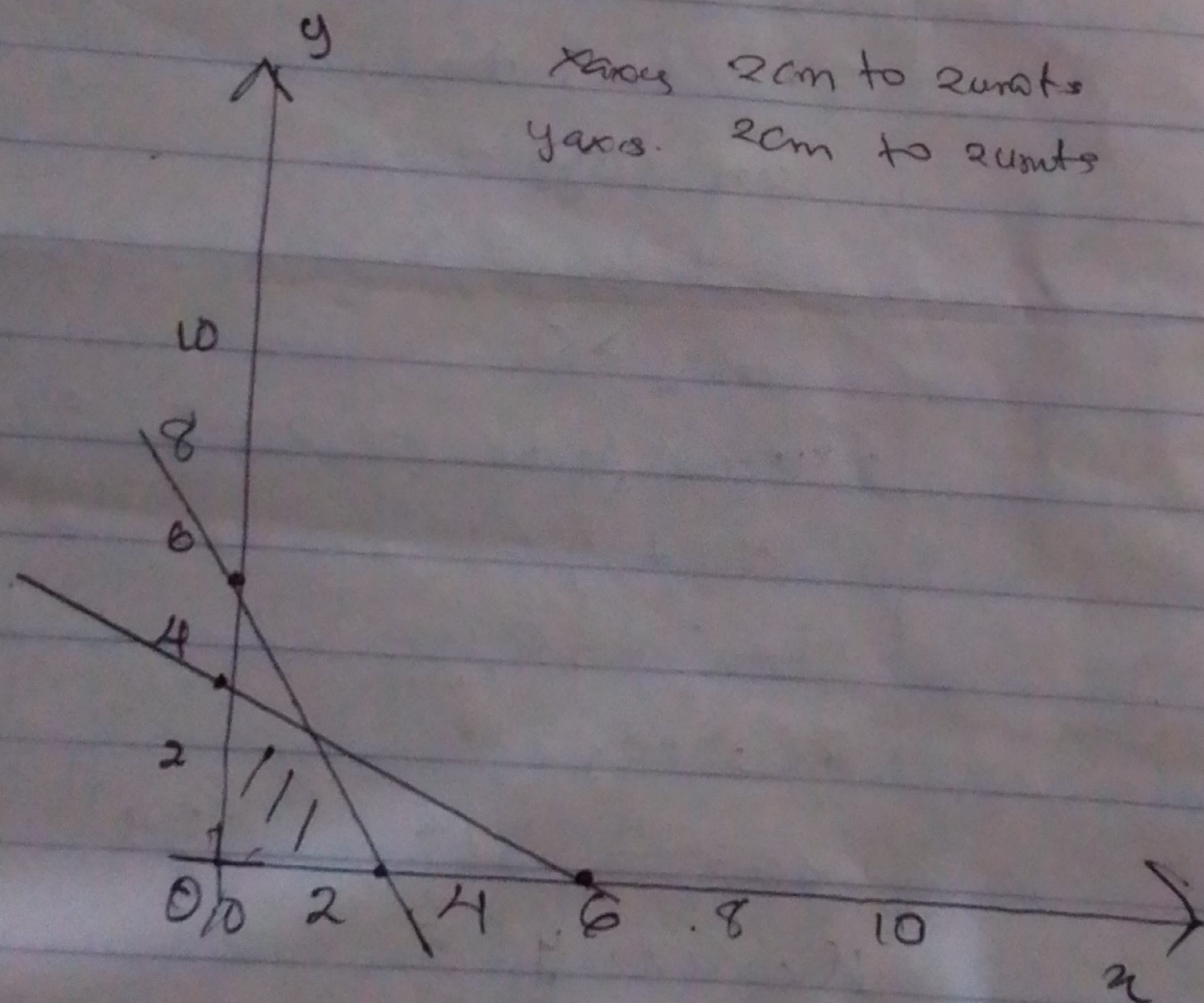
$$B = (6, 0)$$

$$C = (0, 5)$$

$$d = (5/2, 0)$$

$$e = ?$$

x-axis 2cm to 2units
y-axis 2cm to 2units



$$O = (0,0)$$

$$A = (0,26)$$

$$B = (10,0)$$

$$C = (0,15)$$

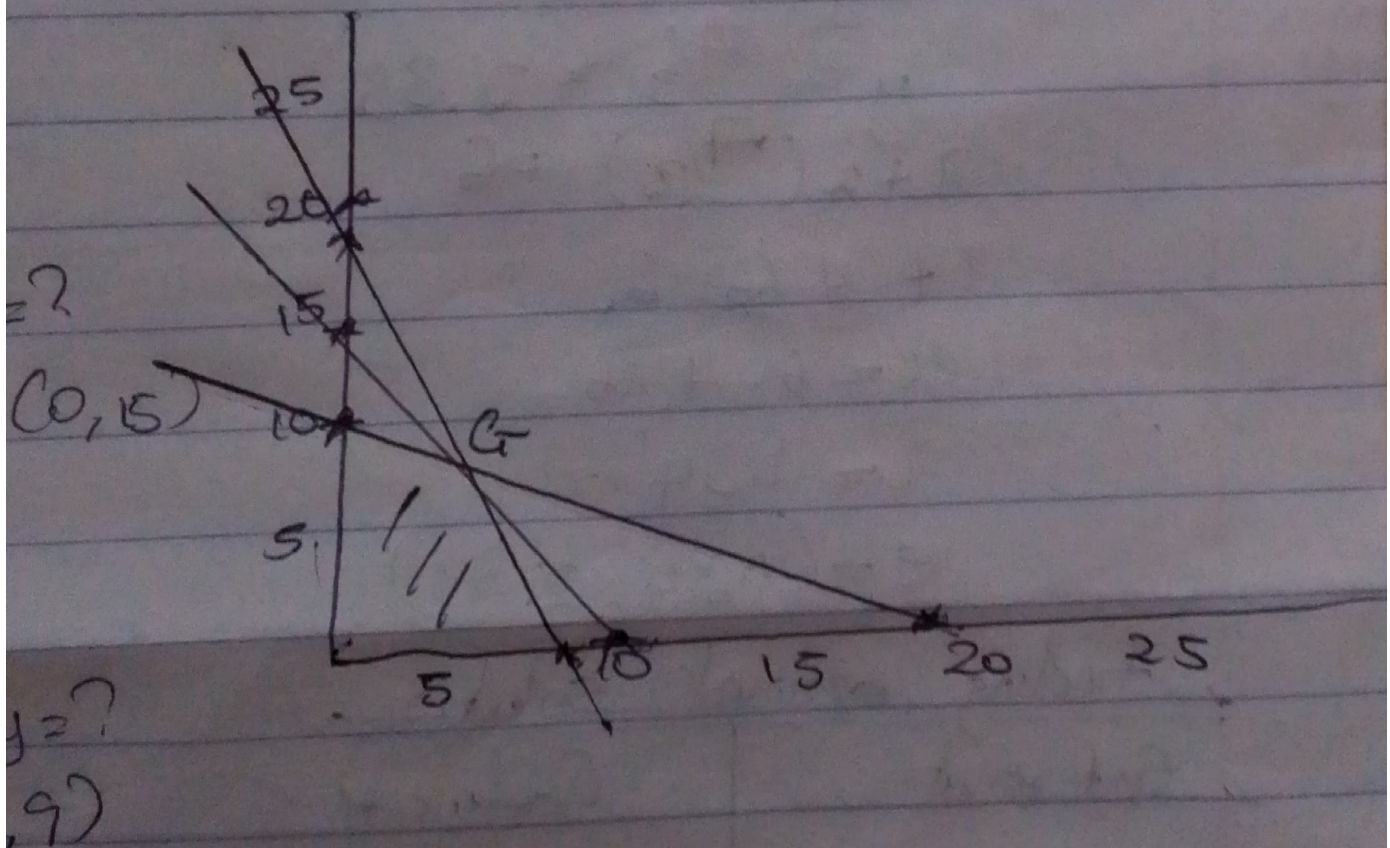
$$D = (10,0)$$

$$E = (0,9)$$

$$I = (18,0)$$

$$G = ?$$

2cm to sunitor x and y axis.



$$y=0, x=?$$

$$x+10=20$$

$$x=20 \quad (20, 0)$$

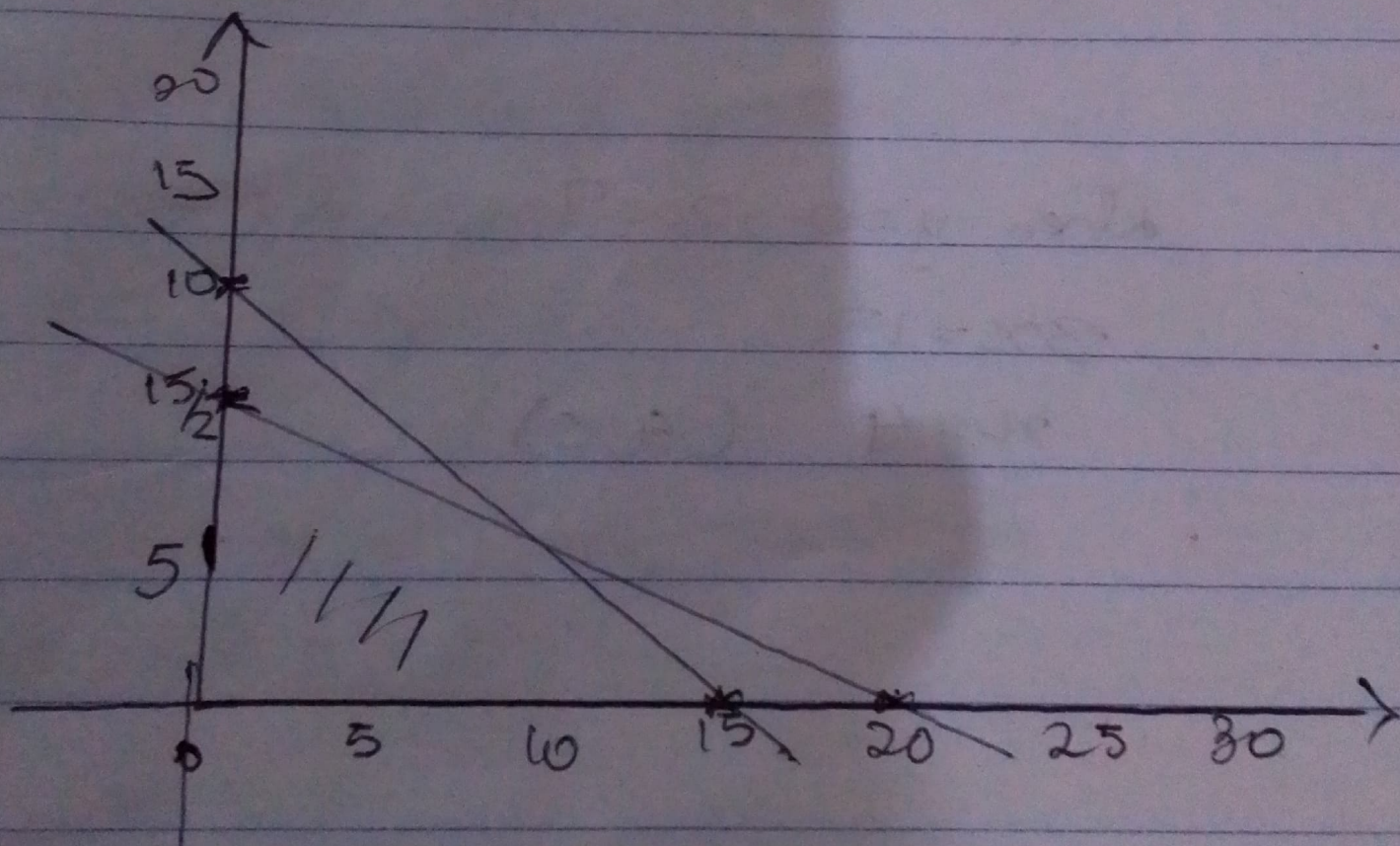
$$x+2y \leq 15$$

$$\text{When } x=0, y=?$$

$$2y=15 \quad y=15/2 \quad (0, 15/2)$$

$$\text{When } y=0, x=?$$

$$x=15 \quad (15, 0)$$



$$x+2y=20 \quad \text{--- (1)}$$

$$x+2y=15 \quad \text{--- (2)}$$

$$2x + y = 6$$

$$\text{when } x=0, y=?$$

$$y = 6 \quad (0, 6)$$

$$\text{when } y=0, x=?$$

$$2x = 6$$

$$x = 3 \quad (3, 0)$$

Ext points

$$O = (0, 0)$$

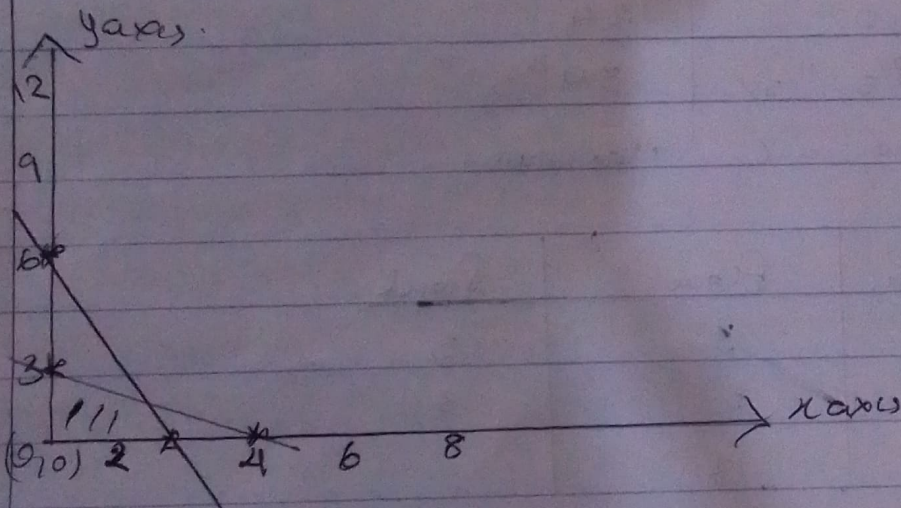
$$A = (0, 3)$$

$$B = (4, 0)$$

$$C = (0, 6)$$

$$D = (3, 0)$$

$$E = ?$$



2cm to 2 units on x axis

2cm to 3 unit on y axis

feasible region $x=0, y=0$

$$3x + 4y \leq 12$$

$$0 \leq 12$$

$$2x + y \leq 6$$

$$0 \leq 6$$

$$\text{To find } E: \quad 3x + 4y = 12 \quad \text{--- (1)}$$

$$2x + y = 6 \quad \text{--- (2)}$$

$$\text{from eq (2)} \quad y = 6 - 2x$$

$$3x + 4(6 - 2x) = 12$$

$$3x + 24 - 8x = 12$$

Optimal solution = C Maximum.

Product	Baking time	Flour	Profit
Chocolate (x)	1	3	5
Vanilla (y)	2	2	3
	8	12	

Objective function.

$$Z = 5x + 3y$$

When $x=0$, $y=?$

Subjected to

$$2y = 8$$

$$x + 2y \leq 8$$

$$y = 4 \quad (0, 4)$$

$$3x + 2y \leq 12$$

When $x=?$, $y=?$

When $x=0$, $y=?$

$$x = 8 \quad (8, 0)$$

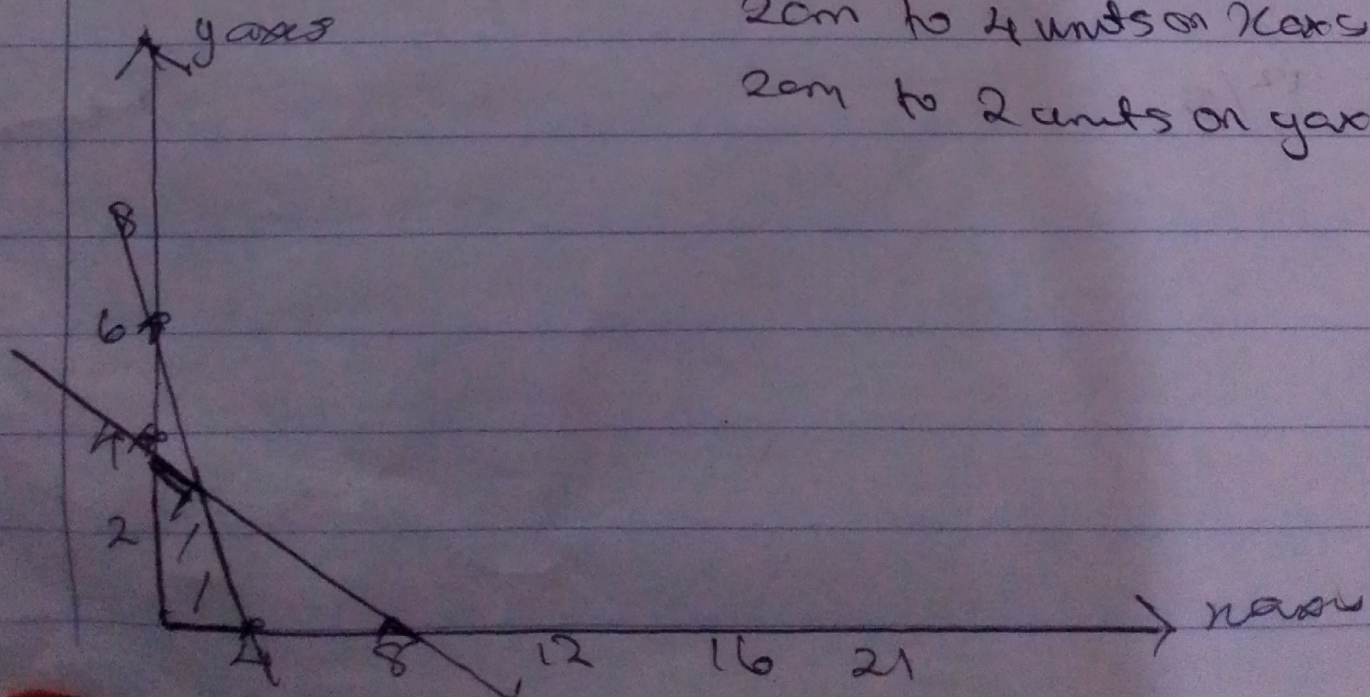
$$2y = 12$$

$$y = 6 \quad (0, 6)$$

When $y=0$, $x=?$

$$3x = 12$$

$$x = 4 \quad (4, 0)$$



2cm to 4 units on x-axis $C = 20$

2cm to 2 units on y-axis $D = 10$

$E = 10$

$$y = 18/4 = 4.5 \quad (0, 4.5)$$

$$0 = (0, 10)$$

$$6 = 2$$

when $y=0$, $x=?$

$$3x = 18$$

$$x = 18/3 = 6 \quad (6, 0)$$

$$2x + y = 10$$

when $y=0$, $x=?$

$$2x = 10$$

$$x = 5 \quad (5, 0)$$

when $x=0$, $y=?$

$$y = 10 \quad (0, 10)$$

2cm to 1cm on x-axis

feasible region $x=$

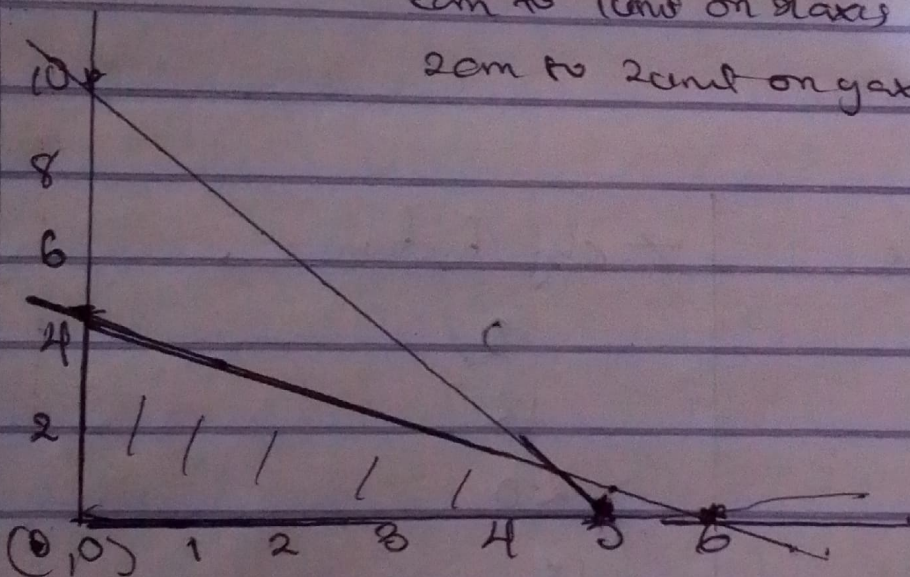
2cm to 2cm on y-axis

$$3x + 4y \geq 18$$

$$0 \geq 18$$

$$2x + y \geq 10$$

$$0 \geq 10$$



to find θ solve simultaneously-

$$3x + 4y = 18 \quad \text{--- (1)}$$

$$2x + y = 10 \quad \text{--- (2)}$$

$$y = 10 - 2x$$

$$3x + 4(10 - 2x) = 18$$

$$3x + 40 - 8x = 18$$

$$\therefore \theta = (22/5,)$$

$$-5x = -22$$

$$x = 22/5$$

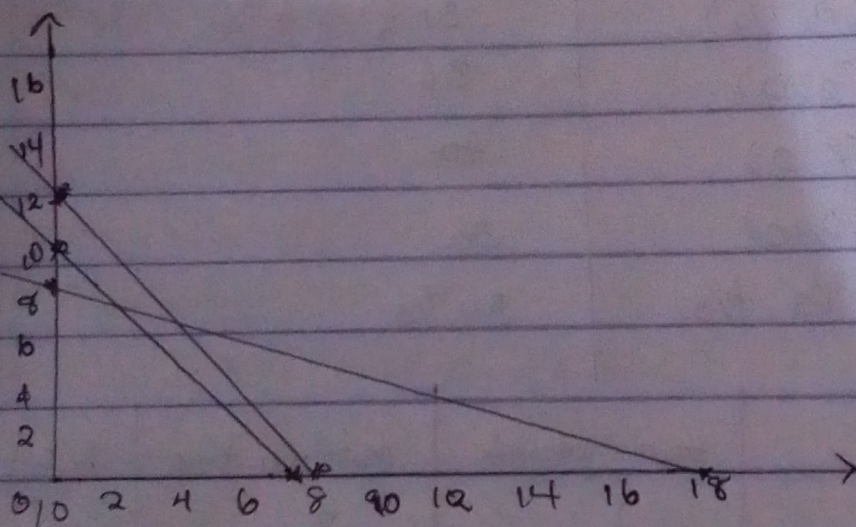
When $y=0$, $x=?$

$$3x = 24$$

$$x = 24/3 = 8 \quad (8, 0)$$

can to sum x axis

can to sum y axis



$$4x + 3y = 30 \quad (1)$$

$$x + 2y = 18 \quad (2)$$

$$3x + 2y = 24 \quad (3)$$

$$x = 18 - 2y \quad (4)$$

Sub into eq (3)

$$3(18 - 2y) + 2y = 24$$

$$54 - 6y + 2y = 24$$

$$y = 15/2$$

$$y = 30/4 \quad (5)$$

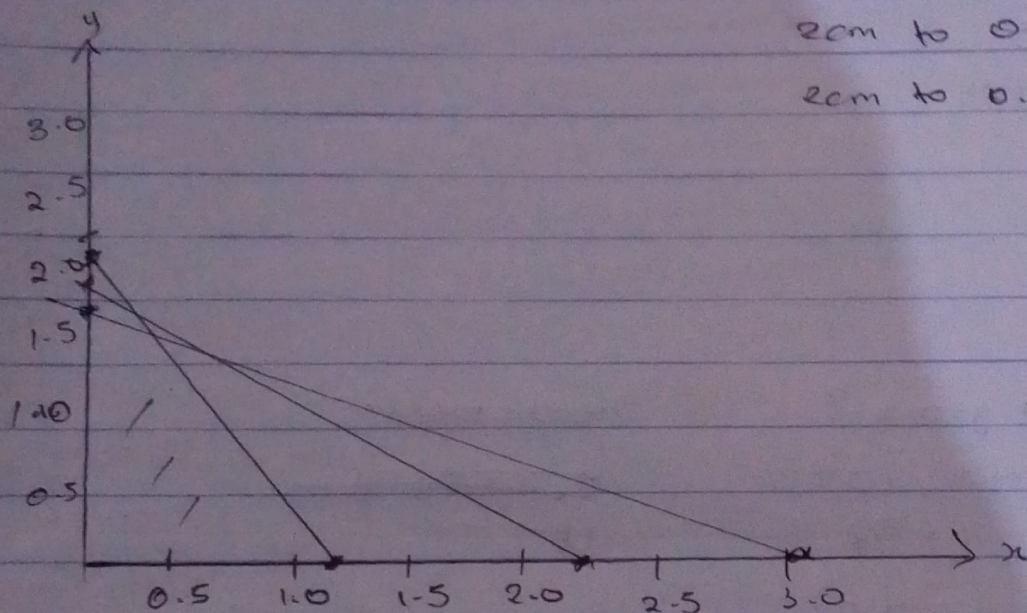
Sub into eq (4)

$$x = 18 - 2(30/4)$$

$$= 18 - 30/2$$

$$x = 3$$

$$(3, 15/2)$$



2cm to 0.5 units on x-axis

2cm to 0.5 units on y-axis

$$4x + 3y = 5 \quad \text{--- (1)}$$

$$2x + 3/2 y = 9/2 \quad \text{--- (2)}$$

$$x + 3/2 y = 3 \quad \text{--- (3)}$$

$$x = 3 - 3/2 y \quad \text{--- (4)}$$

Sub eq 4 in eq 1

$$4(3 - 3/2 y) + 3y = 5$$

$$12 - 3y + 3y = 5$$

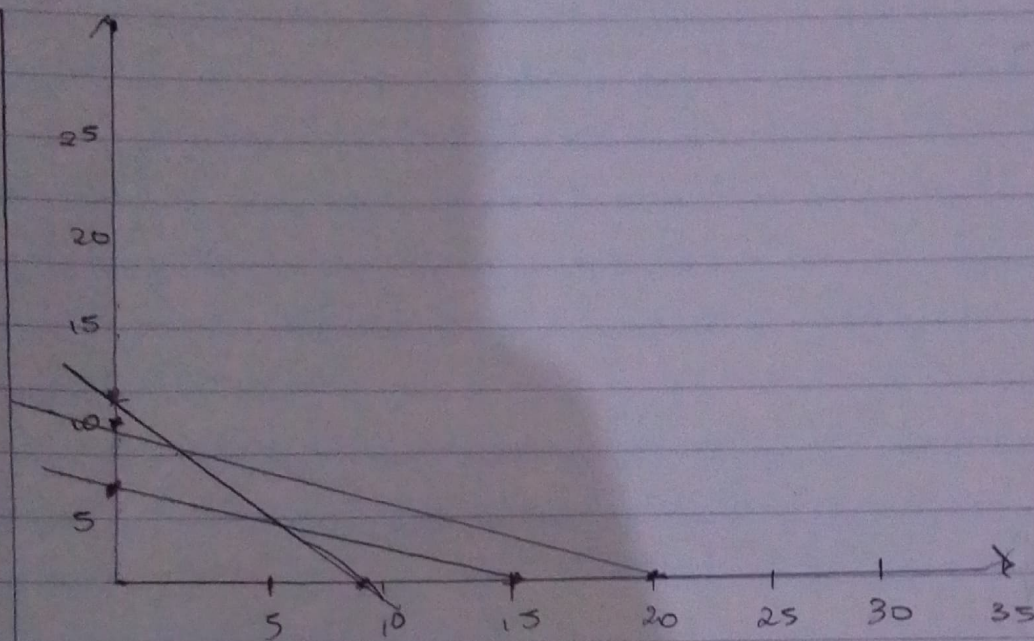
$$y = 5 - 12$$

$$y = -7$$

Not feasible

Meal meat vegetables rice Revenue

20m to 5 unit on x axis
20m to 5 unit on y axis



$$2x + 4y \leq 30$$

$$3x + 2y = 24$$

$$x + 2y = 20$$

$$x = 20 - 2y \quad \text{--- (4)}$$

Sub (4) in eq (3)

$$3(20 - 2y) + 2y = 24$$

$$60 - 6y + 2y = 24$$

$$60 - 4y = 24$$

$$-4y = 24 - 60$$

$$-4y = -36$$

$$y = \frac{-36}{-4} = 9$$

Sub y in eq (4)

$$x = 20 - 2(9)$$

$$x = 2 \quad (2, 9)$$

Extreme points	Coordinates	2 day
O	(0, 0)	0
A	(0, 15/4)	75/4
B	(13, 0)	90
C	(0, 12)	60
D	(8, 0)	48
E	(0, 10)	30
F	(20, 0)	120
G	(2, 9)	57

Optimal Solution is F