

1

Linear Equations in Two Variables

Practice Set 1.2

1. Complete the following table to draw graph of the equations -

(I) $x + y = 3$ (II) $x - y = 4$

$x + y = 3$

x	3	<input type="text"/>	<input type="text"/>
y	<input type="text"/>	5	3
(x, y)	(3, 0)	<input type="text"/>	(0, 3)

$x - y = 4$

x	<input type="text"/>	-1	0
y	0	<input type="text"/>	-4
(x, y)	<input type="text"/>	<input type="text"/>	(0, -4)

Solⁿ:- (I) $x + y = 3$

i) for $x = 3$

$$3 + y = 3$$

$$\therefore y = 3 - 3$$

$$\therefore \boxed{y = 0}$$

ii) for $y = 5$

$$x + 5 = 3$$

$$\therefore x = 3 - 5$$

$$\therefore \boxed{x = -2}$$

iii) for $y = 3$

$$\therefore x + 3 = 3$$



(II) $x - y = 4$

i) for $y = 0$

$$\therefore x - 0 = 4$$

$$\therefore \boxed{x = 4}$$

ii) for $x = -1$

$$\therefore -1 - y = 4$$

$$\therefore y = -1 - 4$$

$$\therefore \boxed{y = -5}$$

$$\therefore x = 3 - 3$$

$$\therefore \boxed{x = 0}$$

$$(I) x + y = 3 \quad (II) x - y = 4$$

$$x + y = 3$$

x	3	-2	0
y	0	5	3
(x, y)	(3, 0)	(-2, 5)	(0, 3)

$$x - y = 4$$

x	4	-1	0
y	0	-5	-4
(x, y)	(4, 0)	(-1, -5)	(0, -4)

2. Solve the following simultaneous equations graphically.

$$(1) x + y = 6 ; x - y = 4$$

Solⁿ:-

$$x + y = 6$$

i) For $x = 0$

$$\therefore 0 + y = 6$$

$$\therefore \boxed{y = 6}$$

ii) For $x = 1$

$$\therefore 1 + y = 6$$

$$\therefore y = 6 - 1$$

iii) For $x = 5$

$$\therefore \boxed{y = 5}$$

$$\therefore 5 + y = 6$$

$$\therefore y = 6 - 5$$

$$\therefore \boxed{y = 1}$$

x	0	1	5
y	6	5	1
(x, y)	(0, 6)	(1, 5)	(5, 1)

$$\text{Now, } x - y = 4$$

$$\text{i) for } x = 1$$

$$\therefore 1 - y = 4$$

$$\therefore y = 1 - 4$$

$$\therefore \boxed{y = -3}$$

$$\text{ii) for } x = 2$$

$$\therefore 2 - y = 4$$

$$\therefore y = 2 - 4$$

$$\therefore \boxed{y = -2}$$

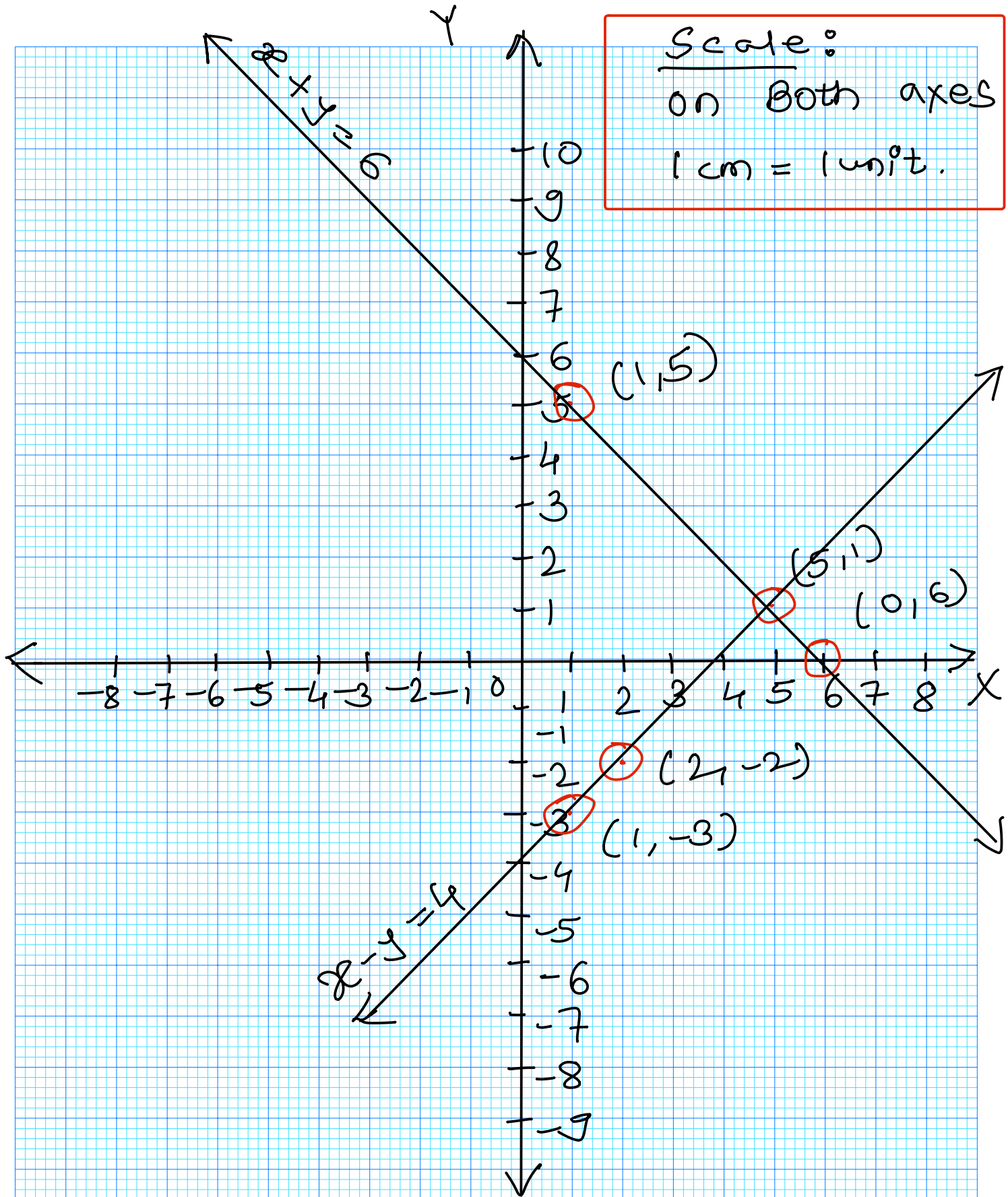
$$\text{iii) for } x = 5$$

$$\therefore 5 - y = 4$$

$$\therefore y = 5 - 4$$

$$\therefore \boxed{y = 1}$$

x	1	2	5
y	-3	-2	1
(x, y)	(1, -3)	(2, -2)	(5, 1)



Intersection Point = $(5, 1)$

\therefore Solution = $(x, y) = (5, 1)$

$$(2) \quad x + y = 5 ; x - y = 3$$

Solⁿ:-

$$x + y = 5$$

i) For $x = 0$

$$\therefore 0 + y = 5$$

$$\therefore \boxed{y = 5}$$

ii) For $x = 1$

$$\therefore 1 + y = 5$$

$$\therefore y = 5 - 1$$

$$\therefore \boxed{y = 4}$$

iii) For $x = 5$

$$\therefore 5 + y = 5$$

$$\therefore y = 5 - 5$$

$$\therefore \boxed{y = 0}$$

x	0	1	5
y	5	4	0
(x, y)	(0, 5)	(1, 4)	(5, 0)

Now, $x - y = 3$

i) for $x = 2$

$$\therefore 2 - y = 3$$

$$\therefore 2 - 3 = y$$

$$\therefore \boxed{y = -1}$$

ii) for $x = 3$

$$\therefore 3 - y = 3$$

$$\therefore 3 - 3 = y$$

$$\therefore \boxed{y = 0}$$

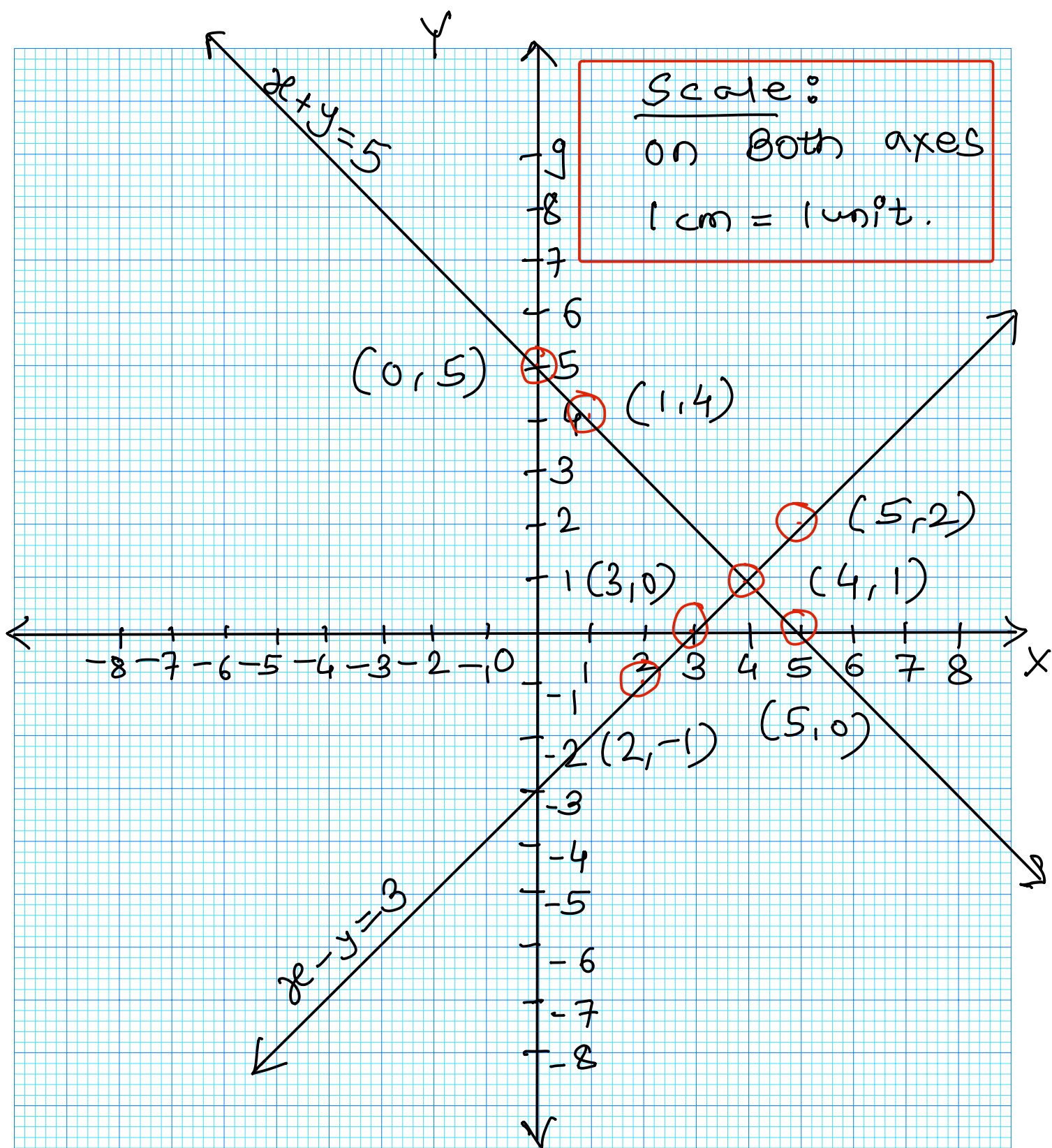
iii) For $x = 5$

$$\therefore 5 - y = 3$$

$$\therefore 5 - 3 = y$$

$$\therefore \boxed{y = 2}$$

x	2	3	5
y	-1	0	2
(x, y)	(2, -1)	(3, 0)	(5, 2)



Intersection point = $(4, 1)$

\therefore Solution = $(x, y) = (4, 1)$

$$(3) \quad x + y = 0 \quad ; \quad 2x - y = 9$$

Solⁿ:-

$$x + y = 0$$

i) For $x = 0$

$$0 + y = 0$$

$$\therefore \boxed{y = 0}$$

ii) For $x = 2$

$$2 + y = 0$$

$$\therefore y = 0 - 2$$

$$\therefore \boxed{y = -2}$$

iii) For $x = 5$

$$5 + y = 0$$

$$\therefore y = 0 - 5$$

$$\therefore \boxed{y = -5}$$

x	0	2	5
y	0	-2	-5
(x, y)	(0, 0)	(2, -2)	(5, -5)

Now, $2x - y = 9$

$\therefore y = 2x - 9$

i) For $x = 1$

$$y = (2 \times 1) - 9$$
$$= 2 - 9$$

$$y = -7$$

ii) For $x = 2$

$$y = (2 \times 2) - 9$$
$$= 4 - 9$$

$$y = -5$$

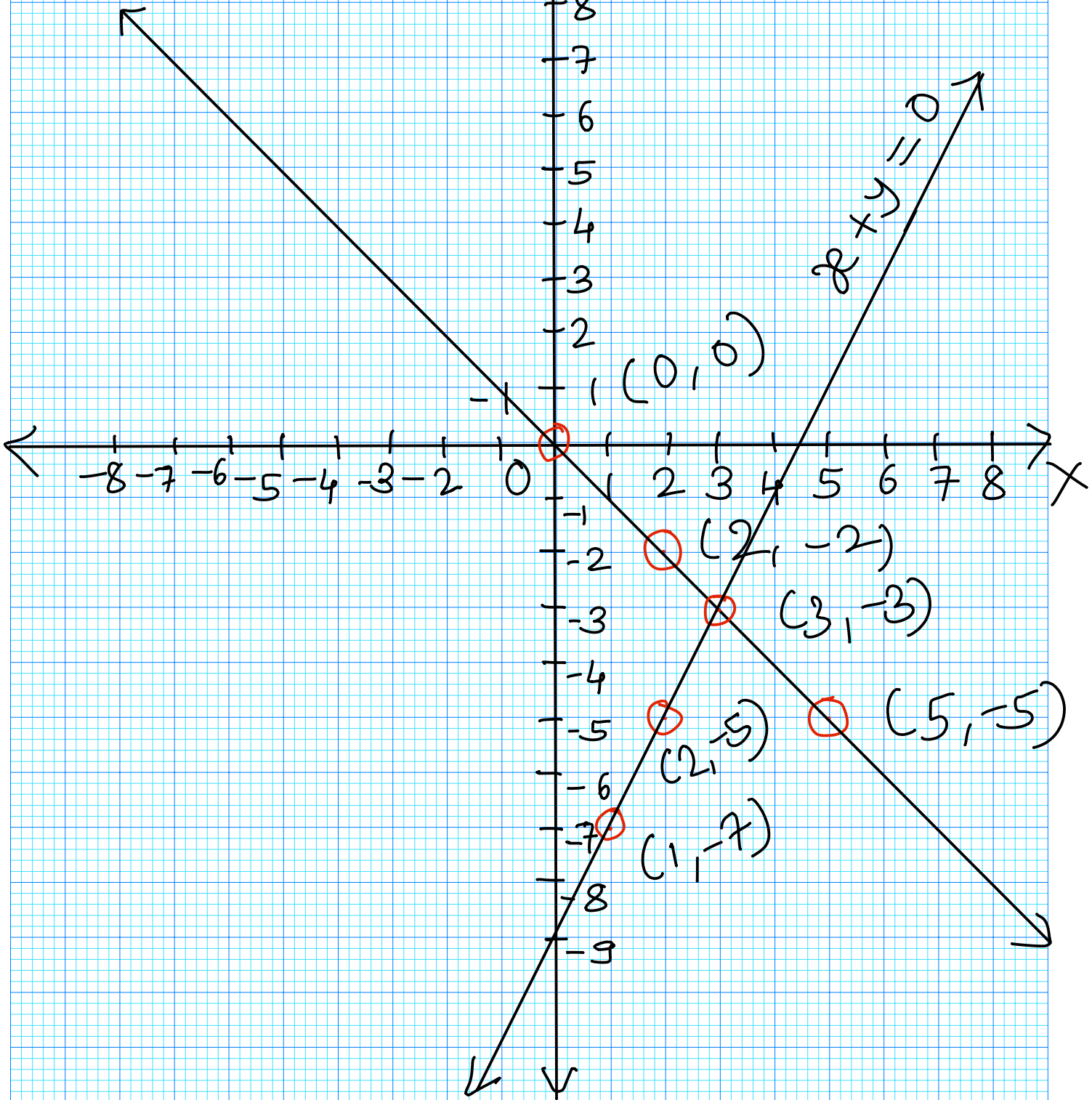
iii) For $x = 3$

$$y = (2 \times 3) - 9$$
$$= 6 - 9$$

$$y = -3$$

x	1	2	3
y	-7	-5	-3
(x, y)	$(1, -7)$	$(2, -5)$	$(3, -3)$

Scale:
on both axes
1 cm = 1 unit.



Intersection Point = $(3, -3)$

∴ Solution = $(x, y) = (3, -3)$

$$(4) \quad 3x - y = 2 ; 2x - y = 3$$

Soln:-

$$3x - y = 2$$

$$\therefore 3x - 2 = y$$

$$\therefore y = 3x - 2$$

i) For $x = 0$

$$y = (3 \times 0) - 2$$

$$\therefore y = 0 - 2$$

$$\therefore \boxed{y = -2}$$

ii) For $x = 1$

$$\therefore y = (3 \times 1) - 2$$

$$= 3 - 2$$

$$\therefore \boxed{y = 1}$$

iii) For $x = 2$

$$y = (3 \times 2) - 2$$

$$= 6 - 2$$

$$\therefore \boxed{y = 4}$$

x	0	1	2
y	-2	1	4
(x, y)	$(0, -2)$	$(1, 1)$	$(2, 4)$

Now, $2x - y = 3$

$$\therefore 2x - 3 = y$$

$$\therefore y = 2x - 3$$

i) For $x = 0$

$$y = (2 \times 0) - 3$$

$$\therefore y = 0 - 3$$

$$\therefore \boxed{y = -3}$$

ii) For $x = 1$

$$y = (2 \times 1) - 3$$

$$= 2 - 3$$

$$\therefore \boxed{y = -1}$$

iii) For $x = -1$

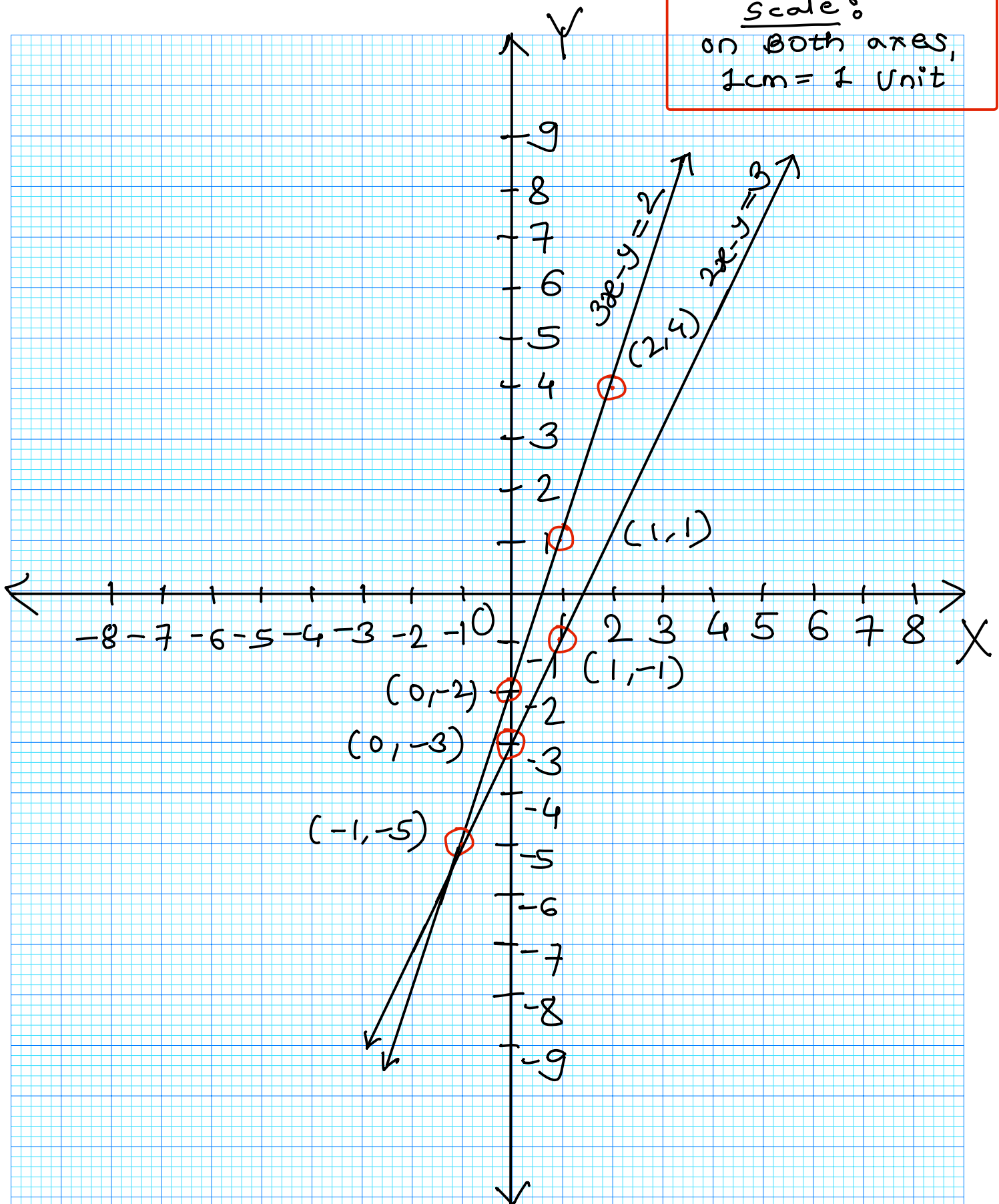
$$y = (2 \times -1) - 3$$

$$= -2 - 3$$

$$\boxed{y = -5}$$

x	0	1	-1
y	-3	-1	-5
(x, y)	$(0, -3)$	$(1, -1)$	$(-1, -5)$

Scale:
on both axes,
1cm = 1 Unit



Intersection Point = $(-1, -5)$

\therefore Solution = $(x, y) = (-1, -5)$.

$$(5) \quad 3x - 4y = -7 ; \quad 5x - 2y = 0$$

Solⁿ:-

$$3x - 4y = -7$$

$$\therefore 3x = 4y - 7$$

$$\therefore x = \frac{4y - 7}{3}$$

i) For $y = 1$,

$$\therefore x = \frac{(4 \times 1) - 7}{3}$$

$$x = \frac{4 - 7}{3}$$

$$x = \frac{-3}{3}$$

$$\therefore \boxed{x = -1}$$

ii) For $y = -2$

$$\therefore x = \frac{(4 \times -2) - 7}{3}$$

$$\therefore x = \frac{-8 - 7}{3}$$

$$\therefore x = \frac{-15}{3}$$

$$\therefore \boxed{x = -5}$$

iii) For $y = 4$,

$$x = \frac{(4 \times 4) - 7}{3}$$

$$= \frac{16 - 7}{3}$$

$$= \frac{9}{3}$$

$$\therefore \boxed{x = 3}$$

x	-1	-5	3
y	1	-2	4
(x, y)	$(-1, 1)$	$(-5, -2)$	$(3, 4)$

Now, $5x - 2y = 0$

$$\therefore 5x = 2y$$

$$\therefore x = \frac{2y}{5}$$

i) For $y = 0$,

$$\therefore x = \frac{(2 \times 0)}{5}$$

$$\therefore x = \frac{0}{5}$$

$$\therefore \boxed{x = 0}$$

ii) For $y = 5$

$$\therefore x = \frac{(2 \times 5)}{5}$$

$$\therefore x = \frac{10}{5}$$

$$\therefore \boxed{x = 2}$$

iii) For $y = -5$,

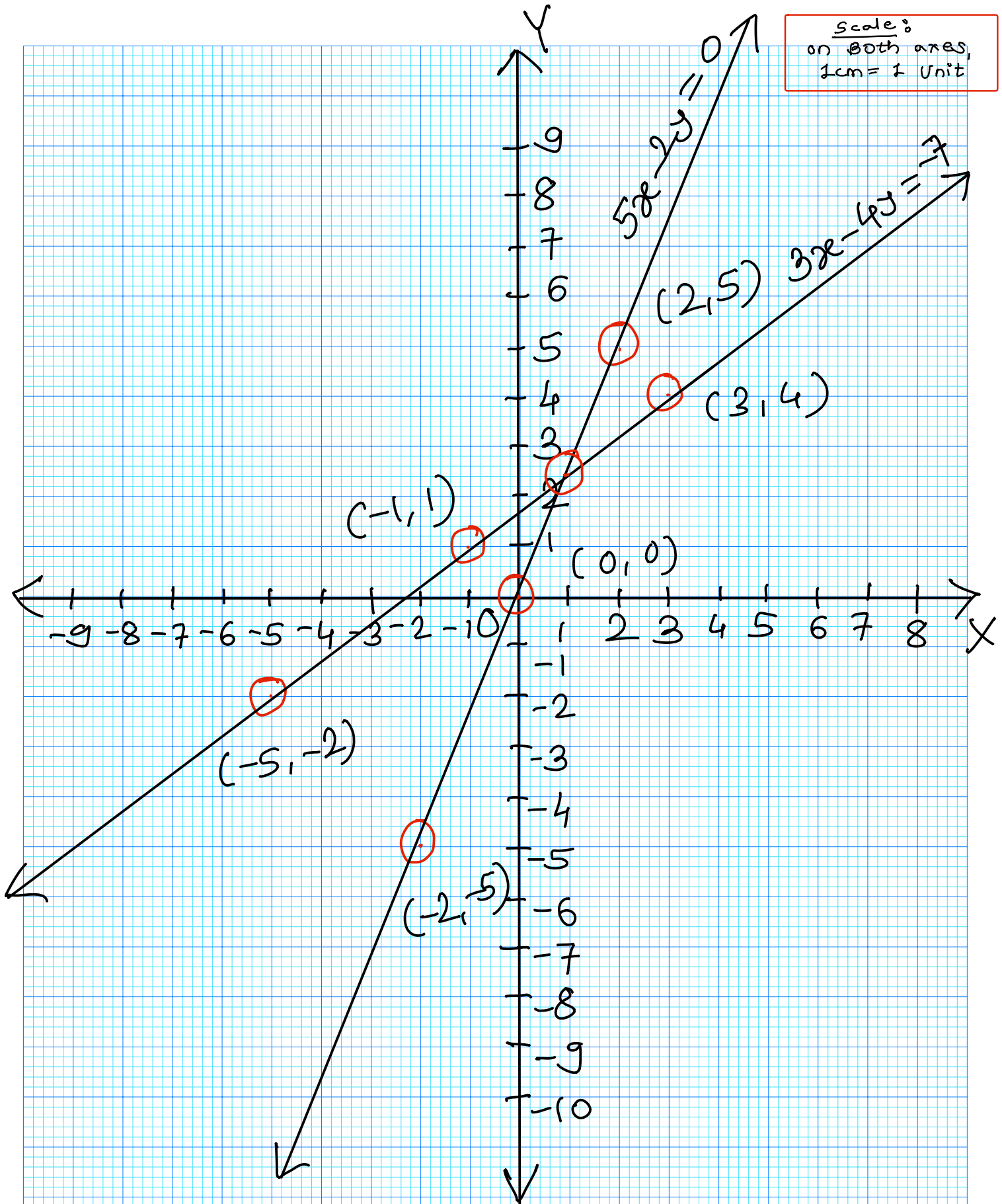
$$\therefore x = \frac{(2x - 5)}{5}$$

$$\therefore x = \frac{-10}{5}$$

$$\therefore \boxed{x = -2}$$

x	0	2	-2
y	0	5	-5
(x, y)	$(0, 0)$	$(2, 5)$	$(-2, -5)$

Scale:
on both axes,
1cm = 1 Unit



Intersection point = $(1, 2.5)$

\therefore Solution = $(x, y) = (1, 2.5)$

$$(6)^{\star} \quad 2x - 3y = 4 \quad ; \quad 3y - x = 4$$

Solⁿ:- $2x - 3y = 4$

$$\therefore 2x = 3y + 4$$

$$\therefore x = \frac{3y + 4}{2}$$

i) For $y = 0$,

$$\therefore x = \frac{(3 \times 0) + 4}{2}$$

$$= \frac{0 + 4}{2}$$

$$= \frac{4}{2}$$

$$\therefore \boxed{x = 2}$$

ii) For $y = 2$,

$$\therefore x = \frac{(3 \times 2) + 4}{2}$$

$$= \frac{6 + 4}{2}$$

$$= \frac{10}{2}$$

$$\therefore \boxed{x = 5}$$

iii) For $y = -2$,

$$x = \frac{(3 \times -2) + 4}{2}$$

$$= \frac{-6 + 4}{2}$$

$$\therefore x = \frac{-2}{2}$$

$$\therefore \boxed{x = -1}$$

x	2	5	-1
y	0	2	-2
(x, y)	$(2, 0)$	$(5, 2)$	$(-1, -2)$

Now, $3y - x = 4$

$$\therefore 3y - 4 = x$$

$$\therefore x = 3y - 4$$

i) For $y = 0$,

$$x = (3 \times 0) - 4$$

$$x = 0 - 4$$

$$\therefore \boxed{x = -4}$$

ii) For $y = 1$

$$\therefore x = (3 \times 1) - 4$$

$$= 3 - 4$$

$$\boxed{x = -1}$$

ii) For $y = 2$,

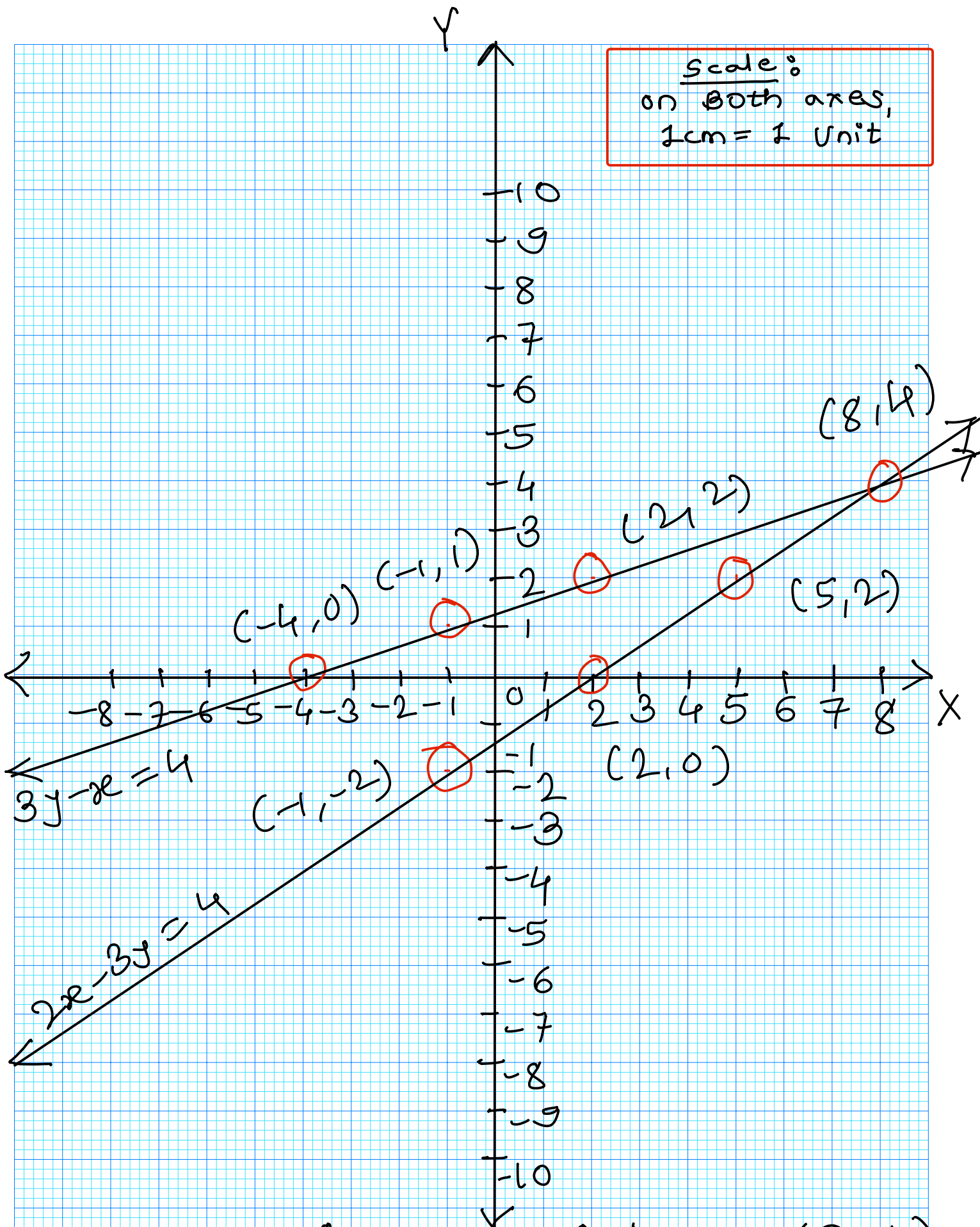
$$x = (3 \times 2) - 4$$

$$= 6 - 4$$

∴ $x = 2$

x	-4	-1	2
y	0	1	2
(x, y)	$(-4, 0)$	$(-1, 1)$	$(2, 2)$

Scale:
on both axes,
1cm = 1 Unit



Intersection point = $(8, 4)$

\therefore Solution = $(x, y) = (8, 4)$.