

Math Sci 9: Test		Total No. 40
Name: _____ Roll No. : _____		
Date: _____ - _____ -20 Teacher's Signature: _____		

Q.1: Tick (✓) the correct answer.

Point $(-8, -8)$ lie in which quadrant ?

I (D)

III (C)

II (B)

IV (A)

$P(-4, 3)$ lies on the quadrant _____:

IV (D)

III (C)

II (B)

I (A)

If $(x - 1, y + 1) = (0, 0)$ then (x, y) is:

$(-1, -1)$ (D)

$(1, 1)$ (C)

$(-1, 1)$ (B)

$(1, -1)$ (A)

Point $(-2, -3)$ lie in which quadrant ?

IV (D)

III (C)

II (B)

I (A)

Point $(2, -3)$ lies in quadrant:

IV (D)

III (C)

II (B)

I (A)

Point $(2, -3)$ lies in quadrant:

IV (D)

III (C)

II (B)

I (A)

Which ordered pair satisfies the equation $y = 2x$?

$(0, 1)$ (D)

$(2, 2)$ (C)

$(2, 1)$ (B)

$(1, 2)$ (A)

If $(x, 0) = (0, y)$ then (x, y) is:

$(1, 1)$ (D)

$(0, 0)$ (C)

$(1, 0)$ (B)

$(0, 1)$ (A)

In which quadrant of the coordinate plane the point $(-5, -2)$ lie:

IV (D)

III (C)

II (B)

I (A)

If $y = 2x + 1, x = 2$ then y is:

4 (D)

3 (C)

2 (B)

1 (A)

$10 \times 2 = 20$ Write short answers to any ten (10) questions.

Define ordered pair of real numbers.

What is the second name of cartesian plane?

Differentiate between abscissa and ordinate.

Plot on graph paper $P(3, 2)$ and $Q(3, 7)$.

Draw in which quadrant point lie:

Draw a graph:

Expressing $x - 2y = -2$ in the form $y = mx + c$.

Verify whether points $(2, 5)$ lies on line $2x - y + 1 = 0$ or not.

Sketch a line graph:

Sketch a graph:

Define coordinate axis.

Indicate origin and coordinate axis with diagram.

$1 \times 10 = 10$ Write answer to any One (1) question.

Solve pair of equations in x and y graphically. $x + y = 0$, $2x - y + 3 = 0$

Solve pair of equations in x and y graphically. $x + y - 1 = 0$, $x - y + 1 = 0$

سوال نمبر 1- درست جواب پر (✓) کا نشان لگائیں۔

1- نقطہ $(-8, -8)$ کون سے ربع میں ہے؟

2- $P(-4, 3)$ ربع پر واقع ہے:

3- اگر $(x - 1, y + 1) = (0, 0)$ ہو تو (x, y) برابر ہے:

4- نقطہ $(-2, -3)$ کون سے ربع میں ہے؟

5- نقطہ $(2, -3)$ مستوی کے ربع میں ہے:

6- نقطہ $(-3, -3)$ مستوی کے ربع میں واقع ہے:

7- کون سا نقطہ مساوات $y = 2x$ کے گراف پر واقع ہے؟

8- اگر $(x, 0) = (0, y)$ ہو تو (x, y) برابر ہے:

9- نقطہ $(-5, -2)$ کوآرڈینیٹ مستوی کے کس ربع میں واقع ہے؟

10- اگر $y = 2x + 1, x = 2$ ہو تو y برابر ہے:

سوال نمبر 2- کوئی سے 10 سوالات کے جوابات تحریر کیجیے۔

i- حقیقی اعداد کے مترتب جوڑے کی تعریف کیجیے۔

ii- کارٹیسسی مستوی کا دوسرا نام کیا ہے؟

iii- ایسیسا اور آرڈینیٹ میں فرق بیان کریں۔

iv- گراف پیپر پر ظاہر کریں: $P(3, 2)$ اور $Q(3, 7)$

v- نقاط کو ربع پر ظاہر کریں۔

vi- گراف بنائیں:

vii- $x - 2y = -2$ مساوات کو $y = mx + c$ میں ظاہر کریں۔

viii- تصدیق کیجیے کہ نقطہ $(2, 5)$ لائن $2x - y + 1 = 0$ پر واقع ہے یا نہیں؟

ix- لائن کا گراف بنائیے:

x- گراف تشکیل دیجیے:

xi- کوآرڈینیٹ خطوط کی تعریف کیجیے۔

xii- شکل کی مدد سے مبداء اور کوآرڈینیٹ محور کی نشاندہی کیجیے۔

نوٹ: کوئی سے ایک سوال کا جواب لکھیے۔

سوال نمبر 3- مساوات کو گراف کی مدد سے باہم حل کیجیے۔

سوال نمبر 4- مساوات کو گراف کی مدد سے باہم حل کیجیے۔

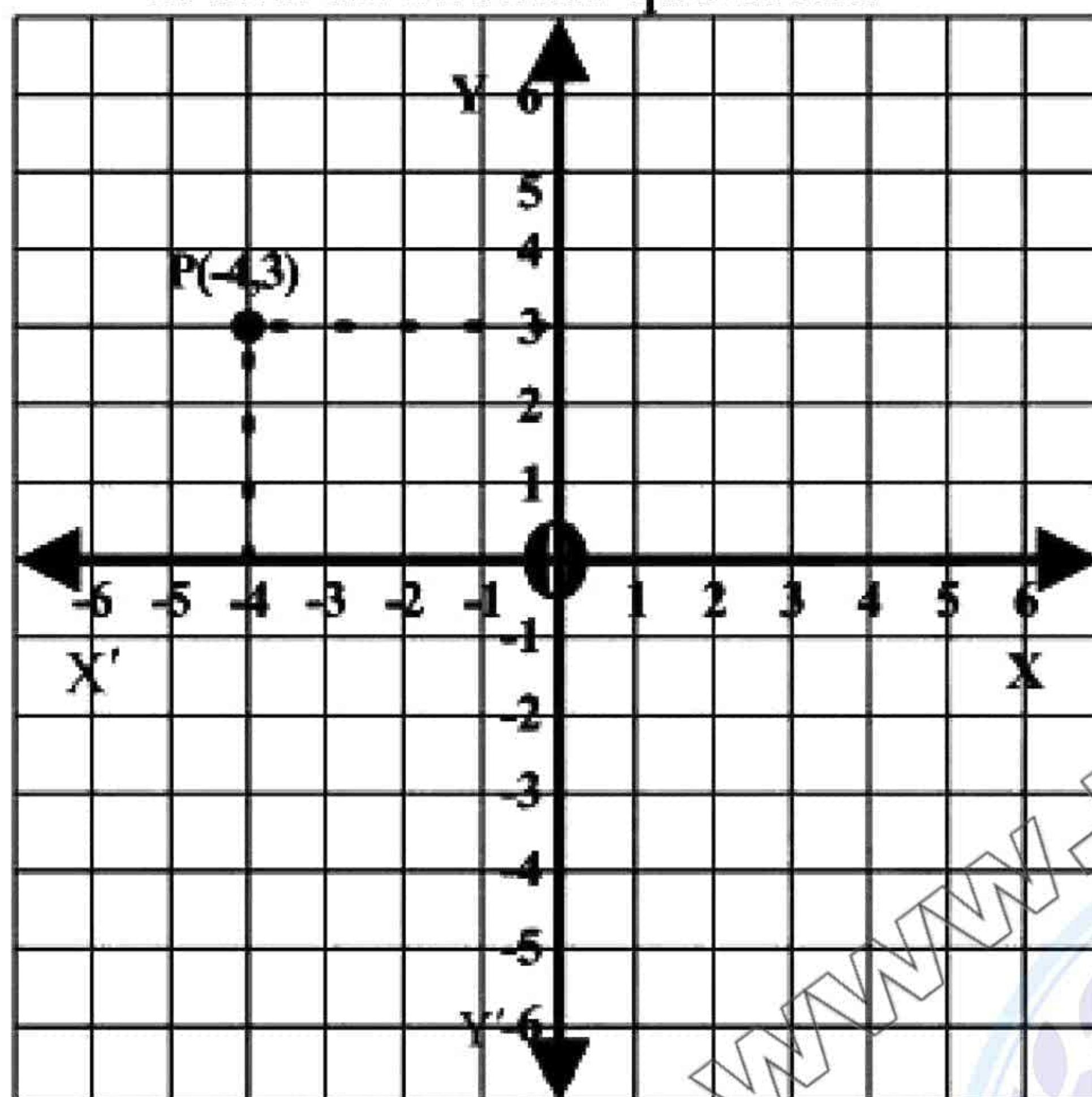
Exercise 8.1

Q.1

- (i) Determine the quadrant of coordinate plane in which the following points lies

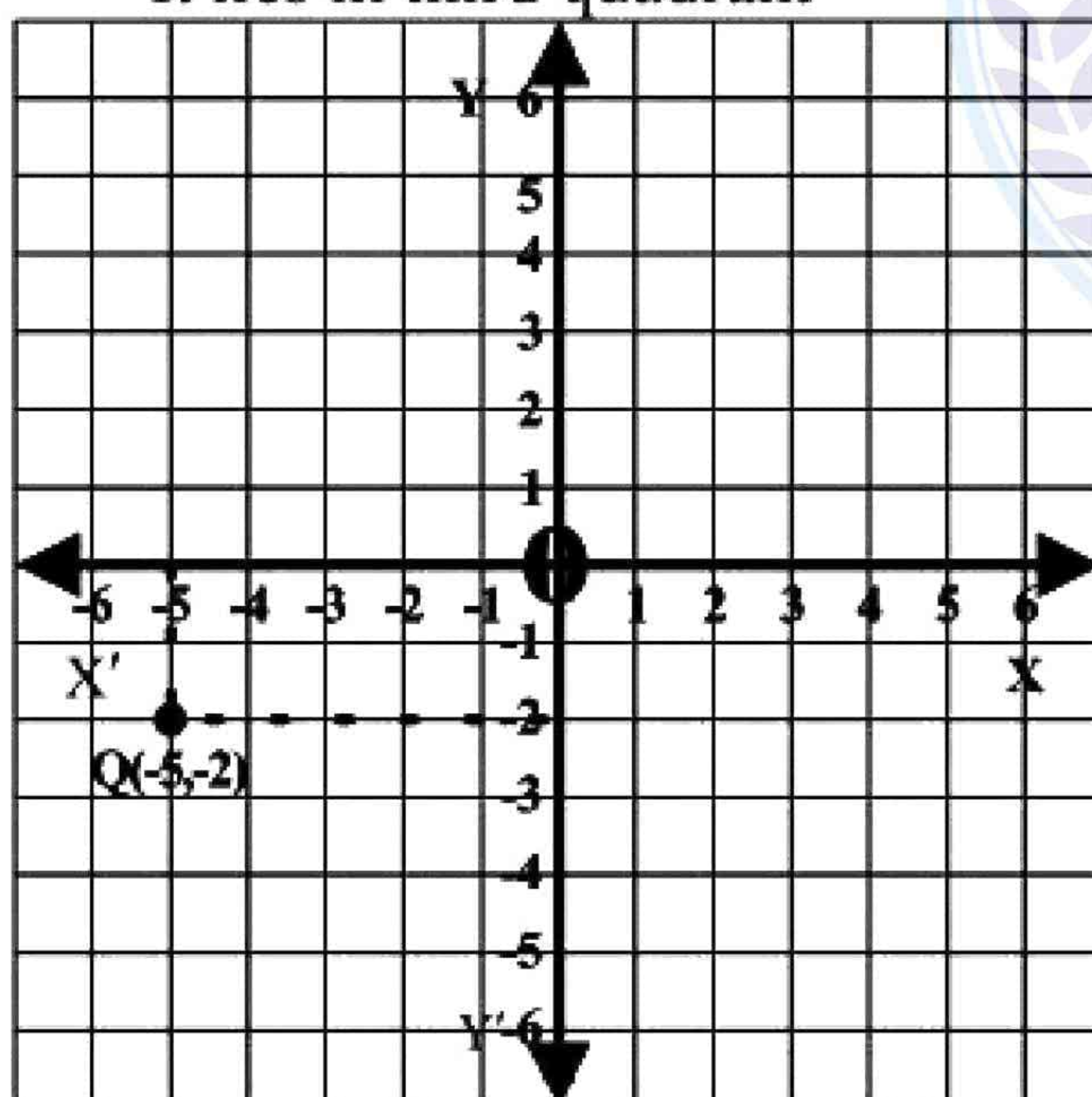
P (-4, 3)

It lies in second quadrant



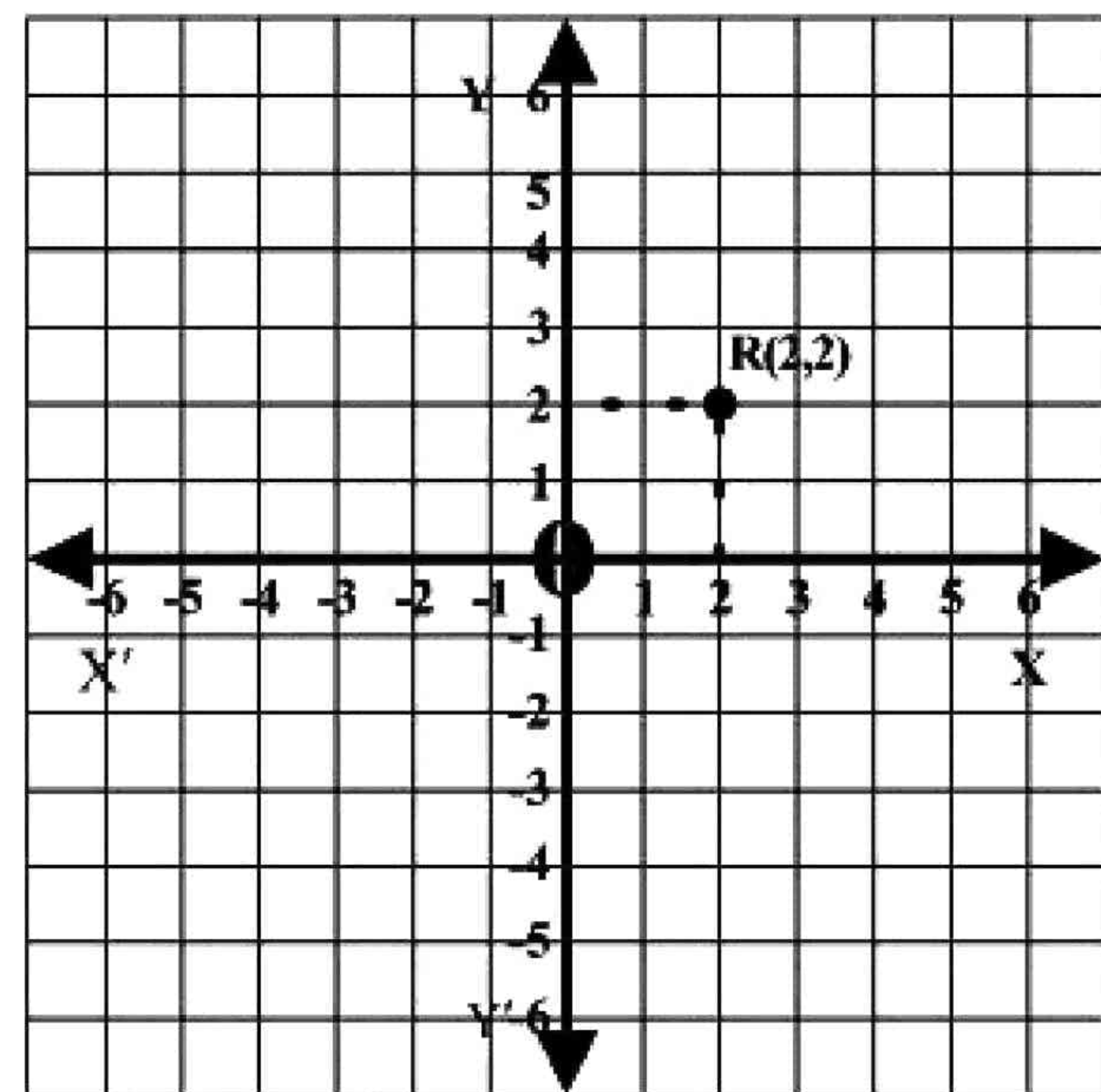
Q (-5, -2)

It lies in third quadrant



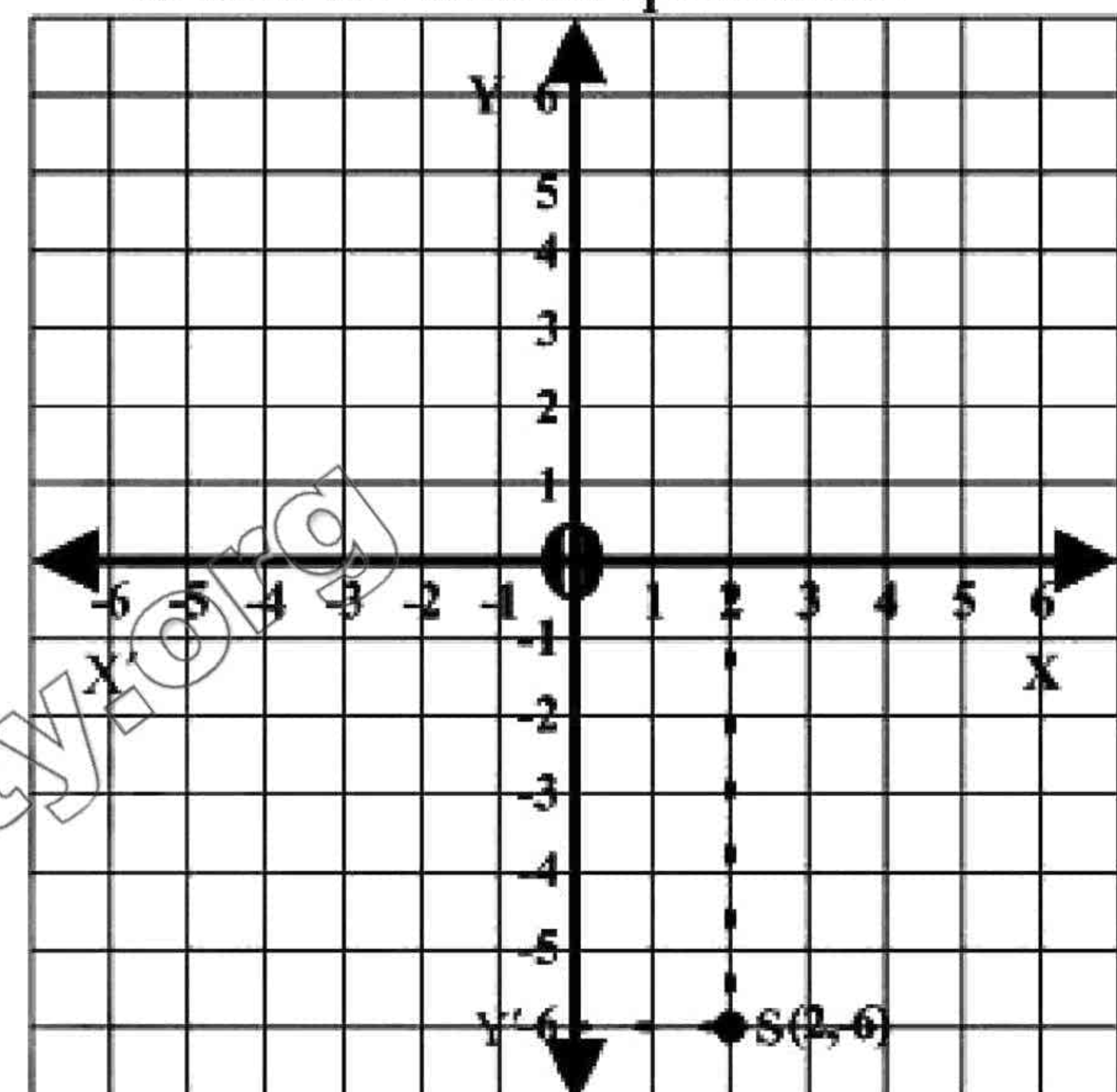
R (2, 2)

It lies in first quadrant



S (2, -6)

It lies in fourth quadrant



Q.2

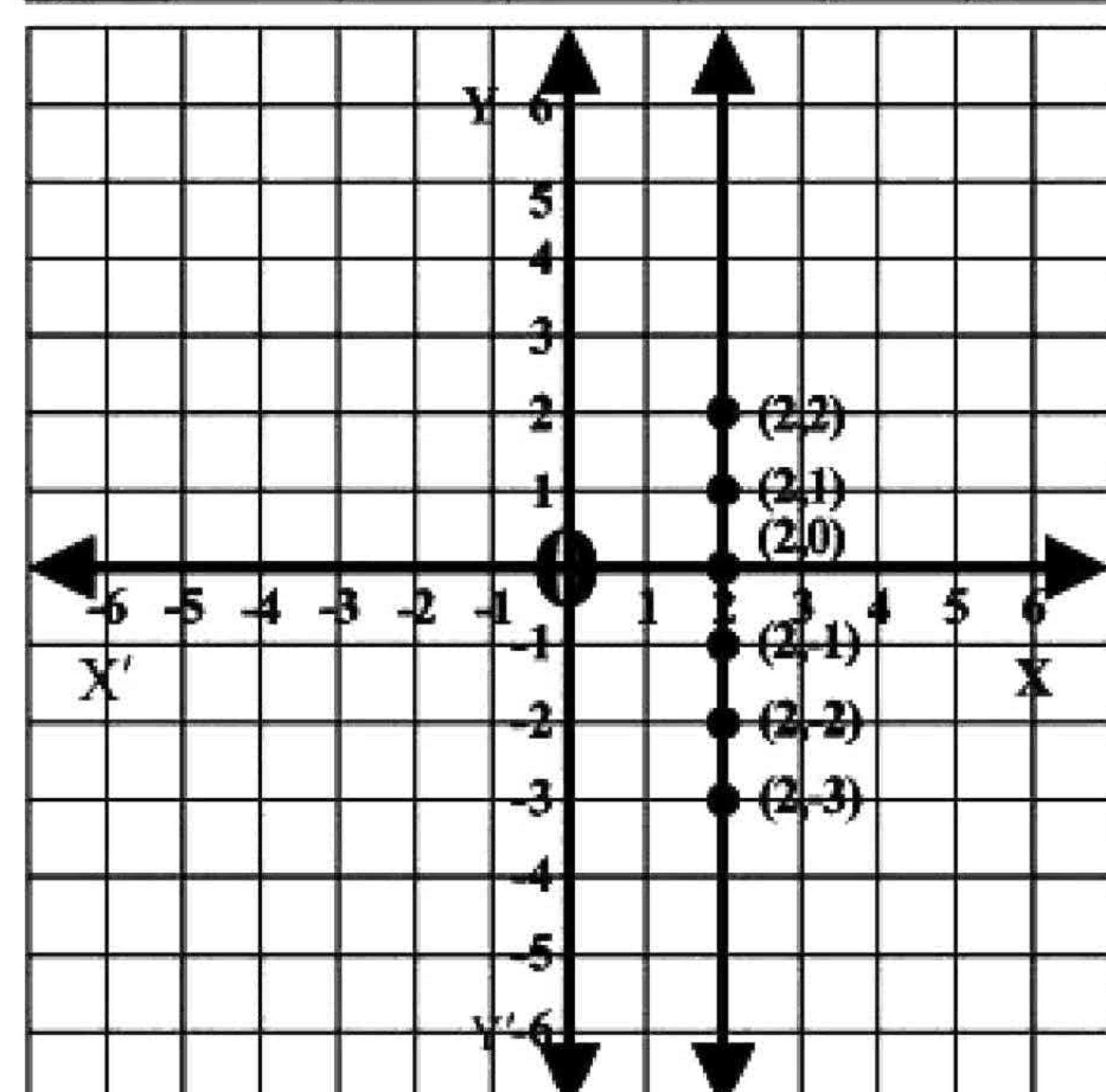
Draw the graph of each of the following
i.e.

(i)

$$x = 2$$

The table for the points of equation
 $x = 2$ is as under

x	2	2	2	2	2	2
y	-3	-2	-1	0	1	2

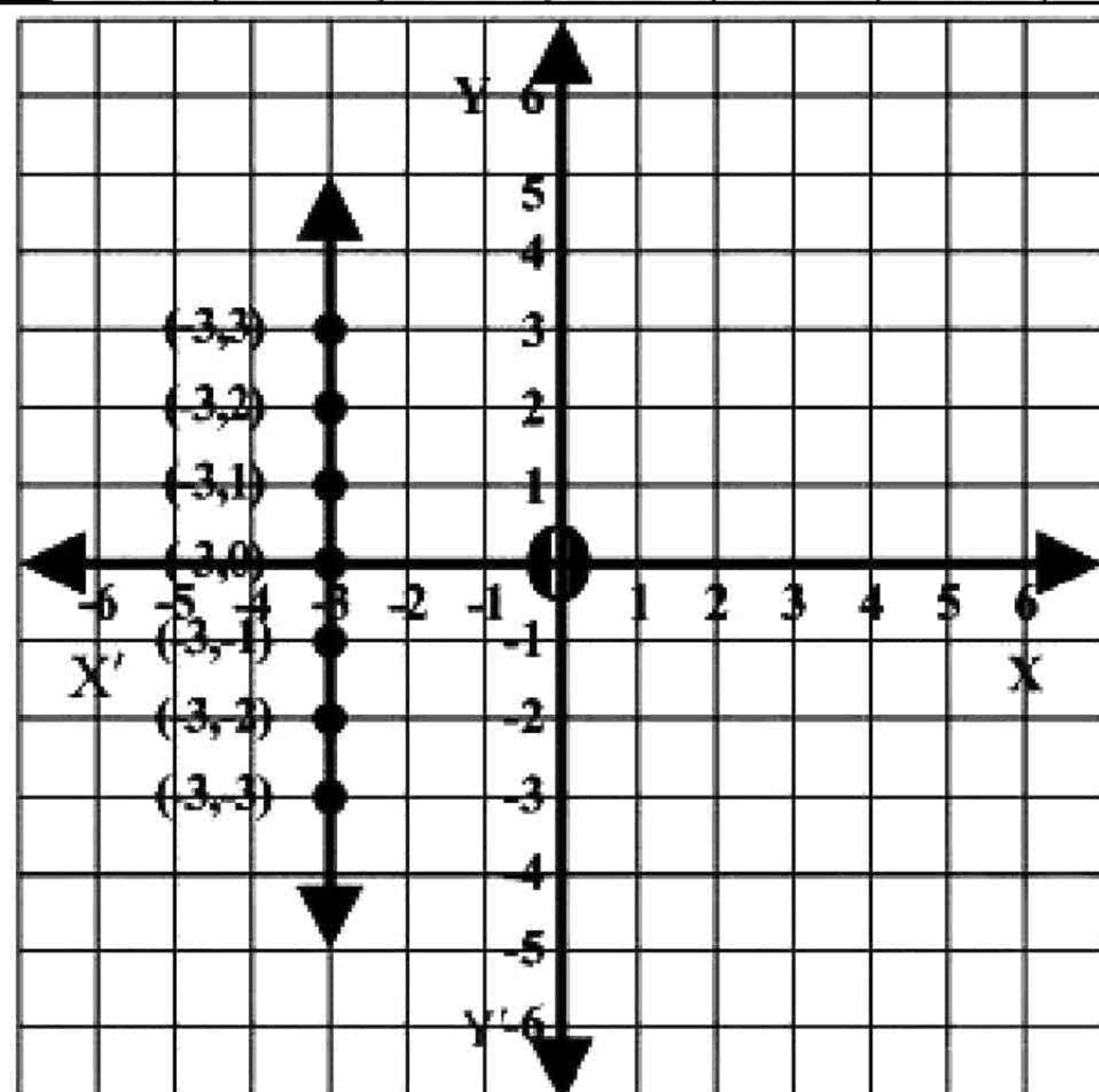


(ii) $x = -3$

The table for the points of equation

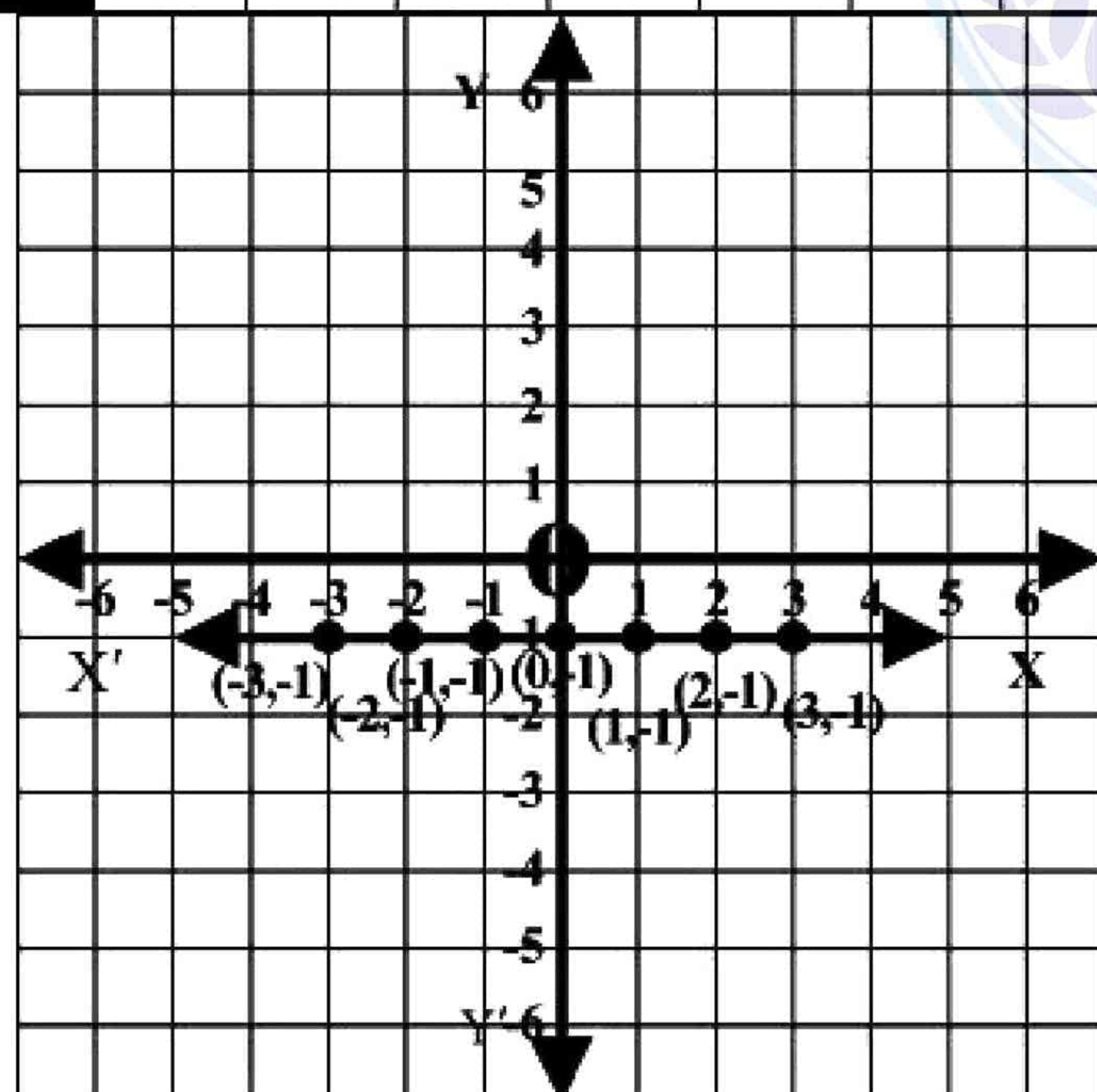
 $x = -3$ is as under

x	-3	-3	-3	-3	-3	-3	-3
y	-3	-2	-1	0	1	2	3



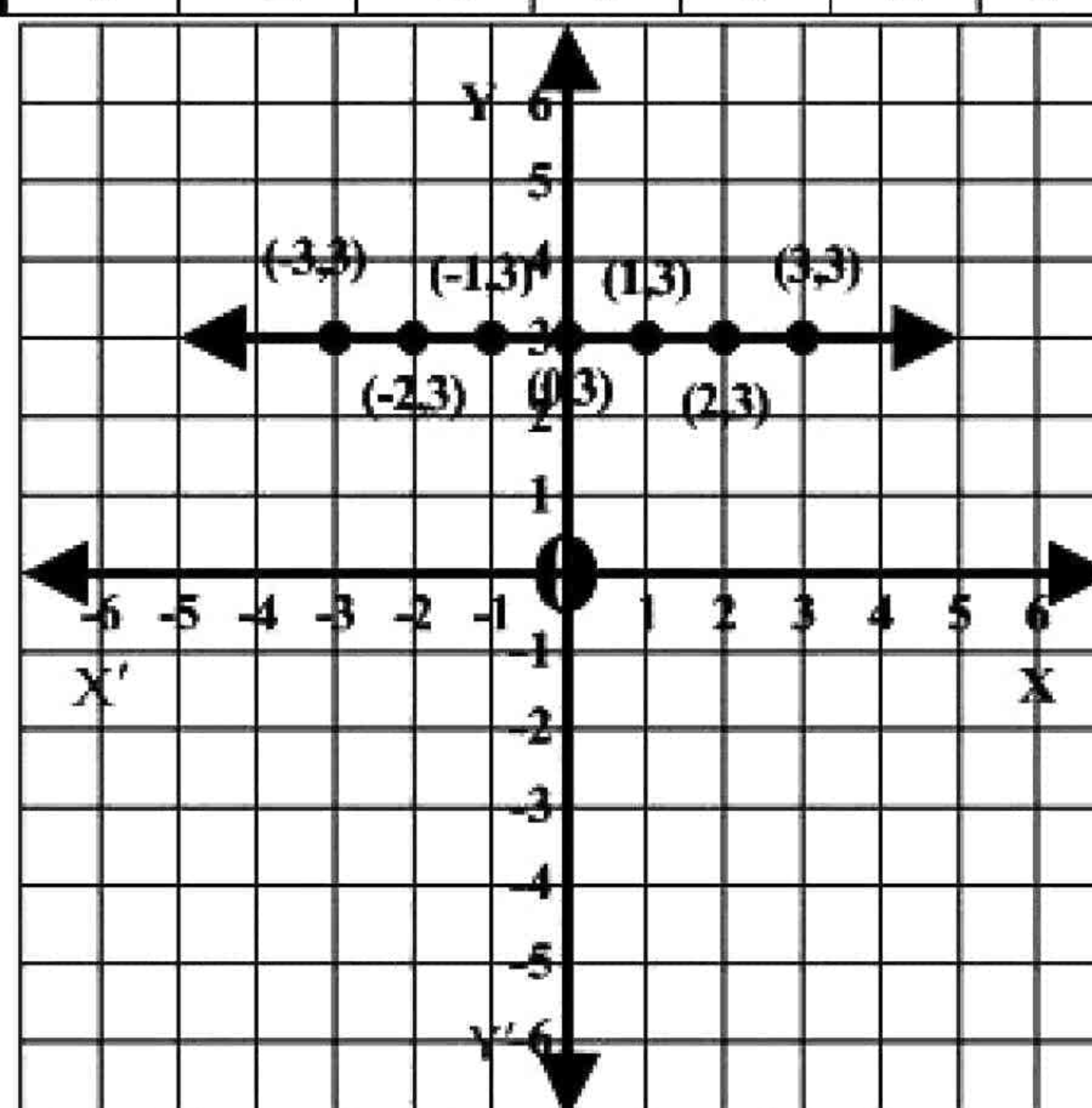
(iii) $y = -1$

x	-1	-1	-1	-1	-1	-1	-1
y	-3	-2	-1	0	1	2	3



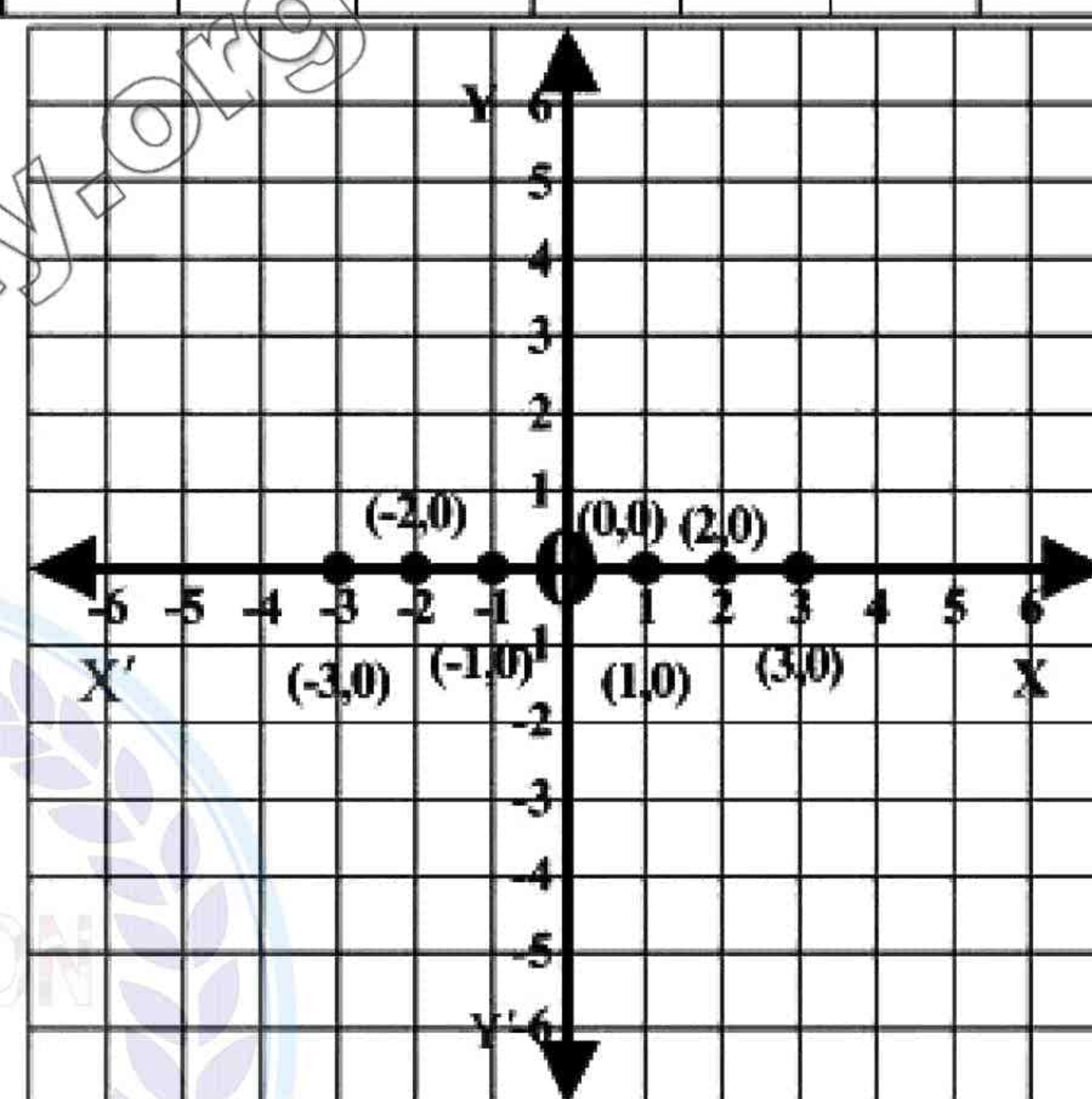
(iv) $y = 3$

x	3	3	3	3	3	3	3
y	-3	-2	-1	0	1	2	3



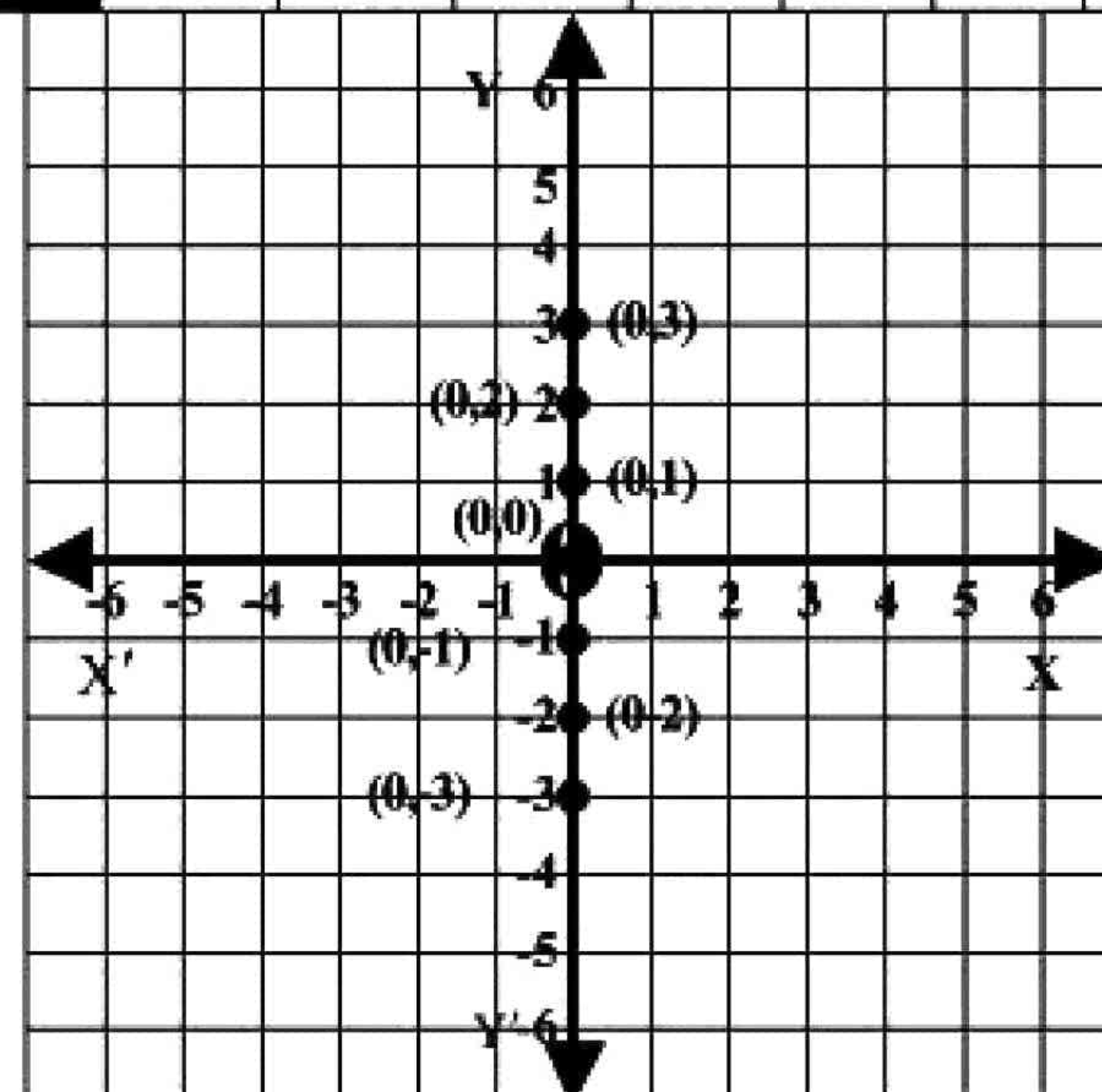
(v) $y = 0$

x	-3	-2	-1	0	1	2	3	4
y	0	0	0	0	0	0	0	0



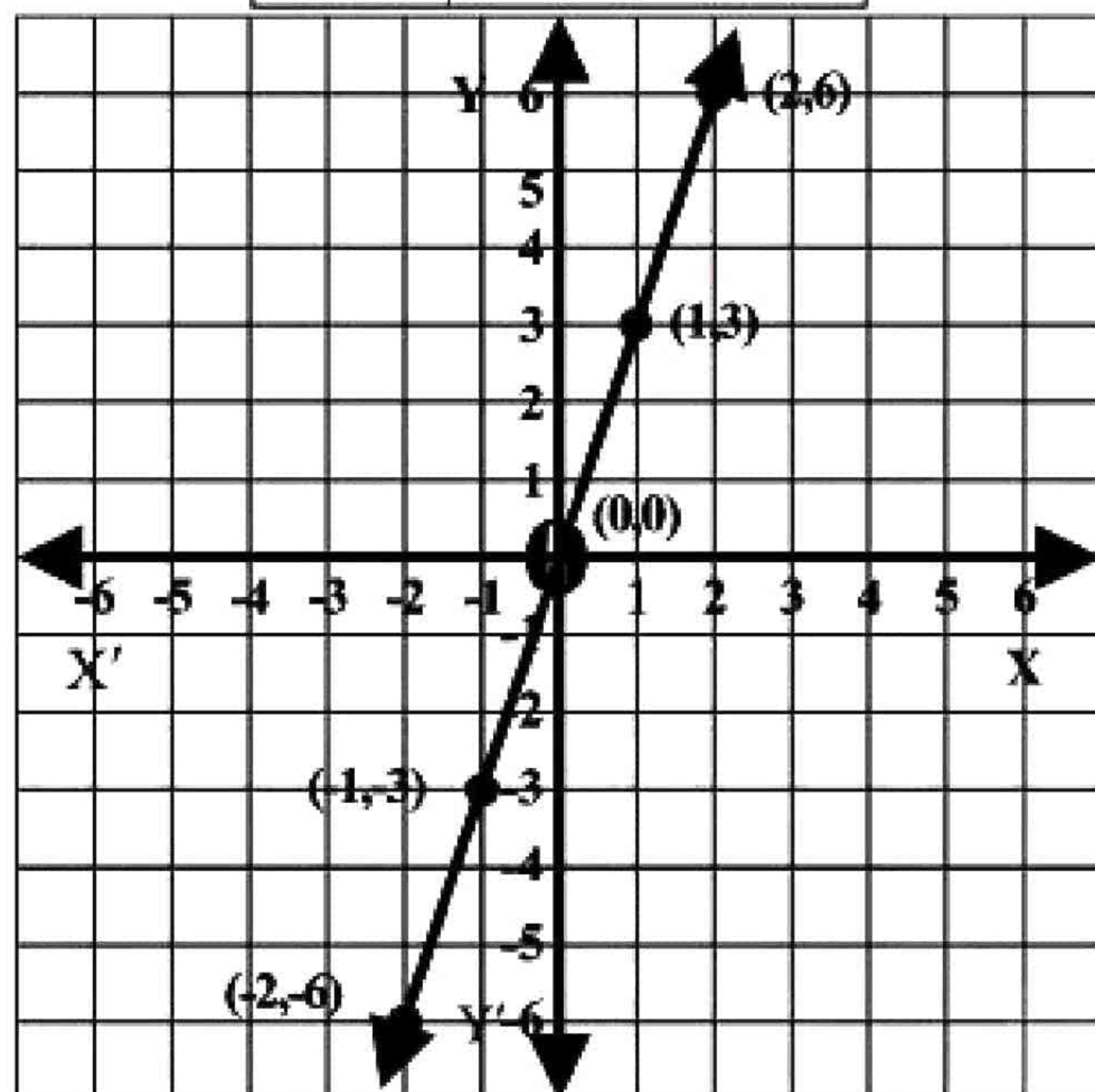
(vi) $x = 0$

x	0	0	0	0	0	0	0
y	-3	-2	-1	0	1	2	3



(vii) $y = 3x$

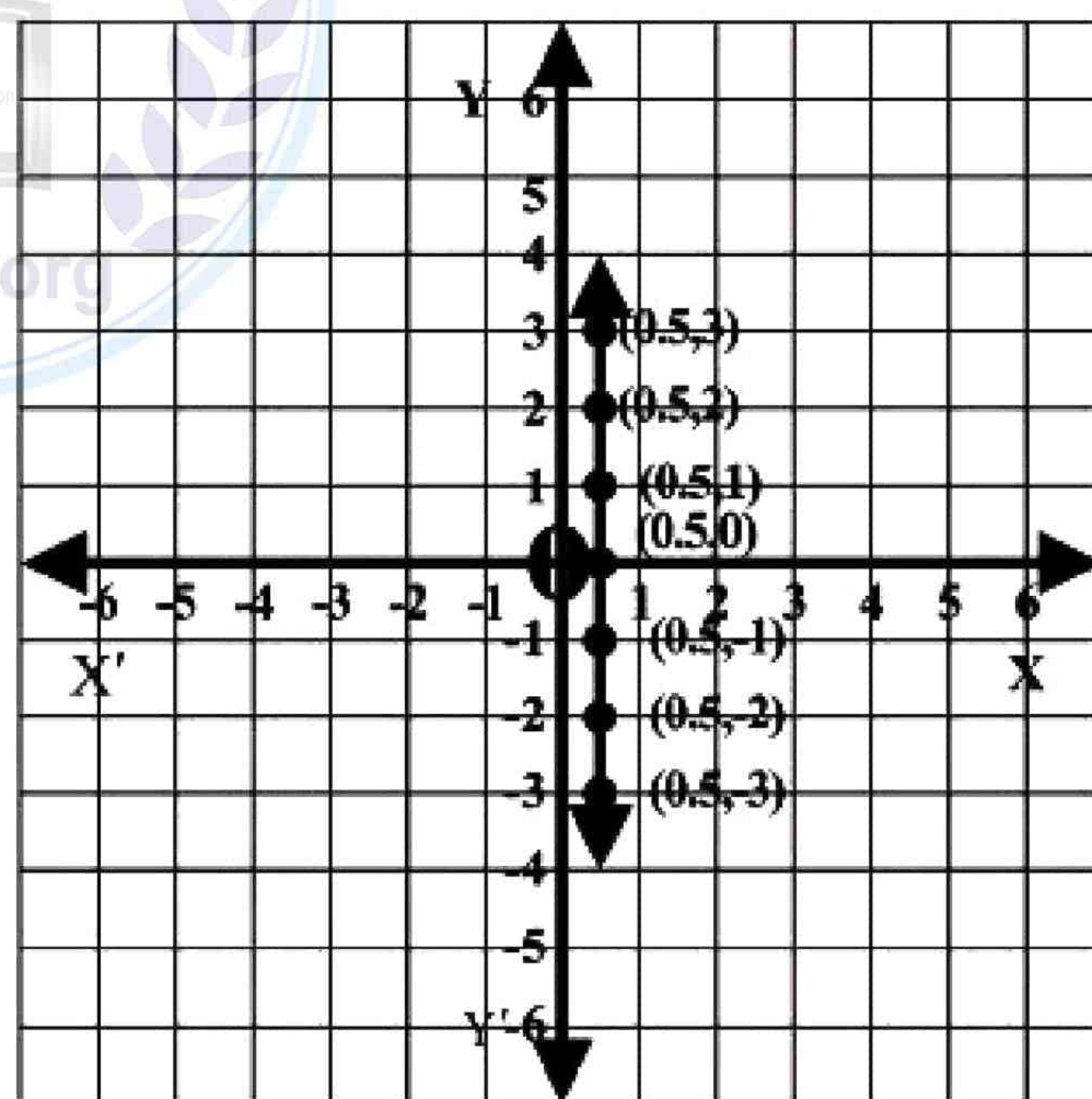
x	$y = 3x$
....	
-2	$3(-2) = -6$
-1	$3(-1) = -3$
0	$3(0) = 0$
1	$3(1) = 3$
2	$3(2) = 6$
...	...



(ix) $\frac{1}{2} = x$

Or $x = \frac{1}{2}$

x	y
$\frac{1}{2} = 0.5$	-3
$\frac{1}{2} = 0.5$	-2
$\frac{1}{2} = 0.5$	-1
$\frac{1}{2} = 0.5$	0
$\frac{1}{2} = 0.5$	1
$\frac{1}{2} = 0.5$	2
$\frac{1}{2} = 0.5$	



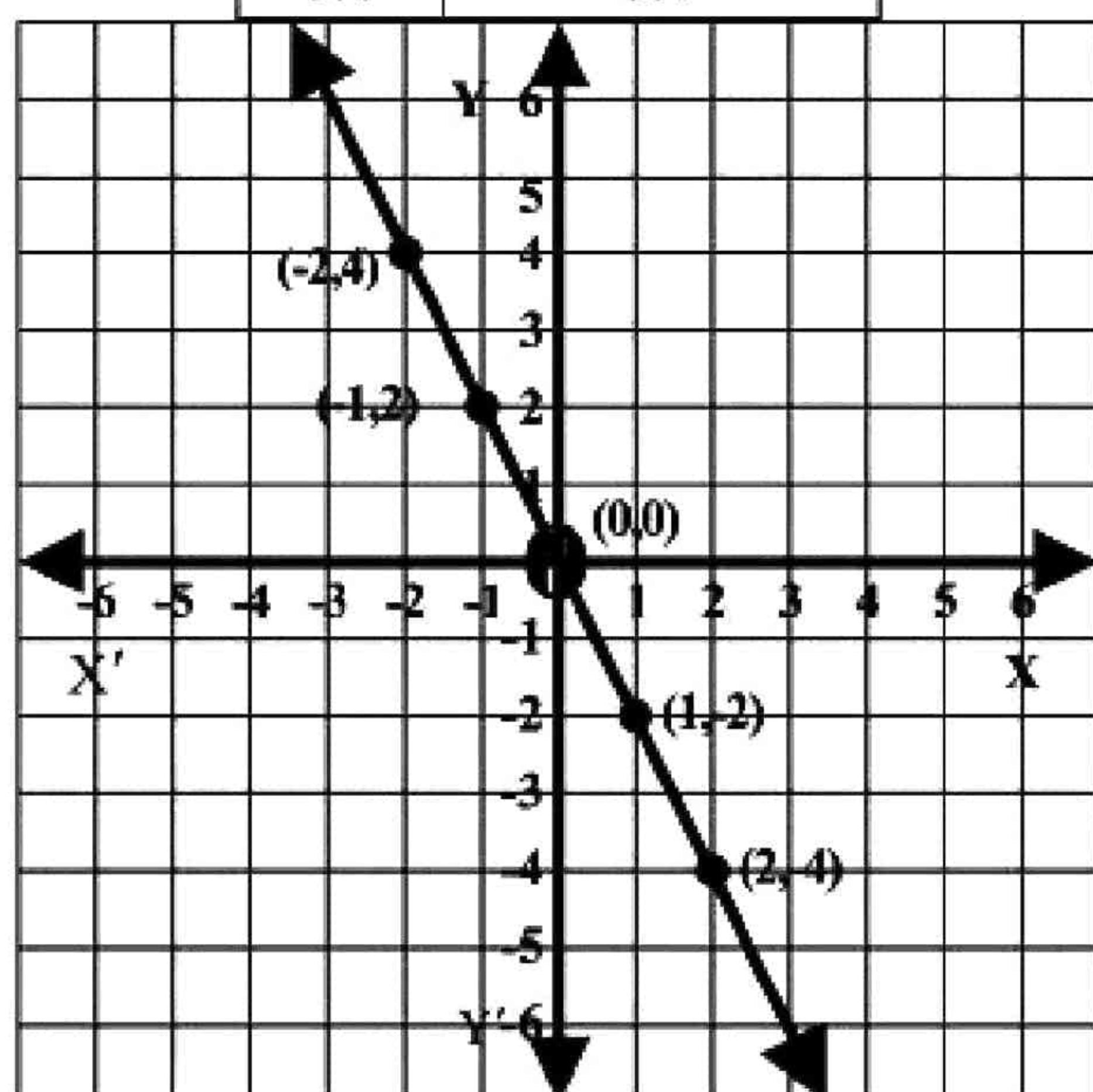
(viii) $-y = 2x$

Multiply both sides by (-)

$-(-y) = -2x$

$y = -2x$

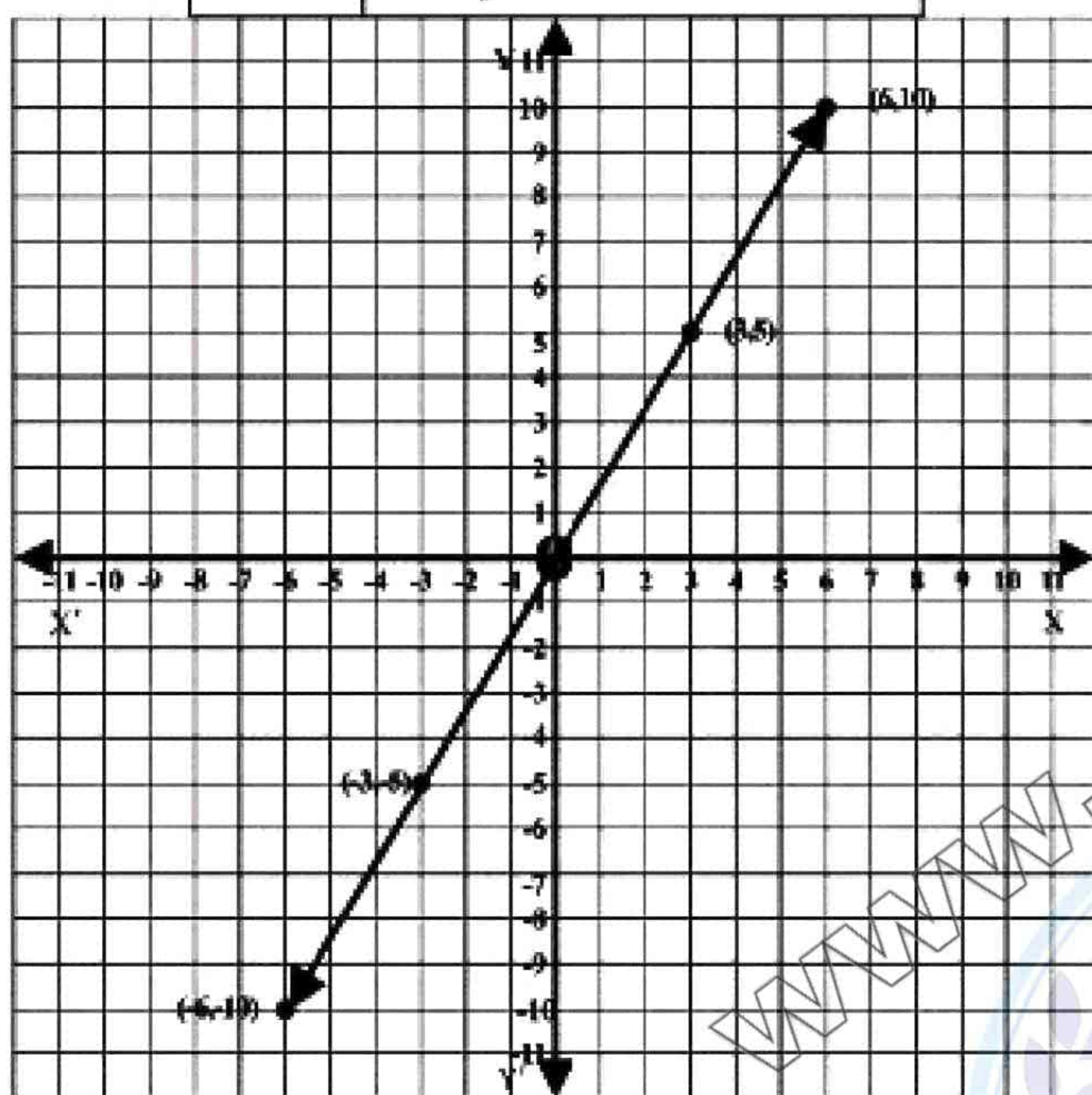
x	$y = -2x$
....	
-2	$-2(-2) = 4$
-1	$-2(-1) = 2$
0	$-2(0) = 0$
1	$-2(1) = -2$
2	$-2(2) = -4$
...	...



(x) $3y = 5x$

$$y = \frac{5}{3}x$$

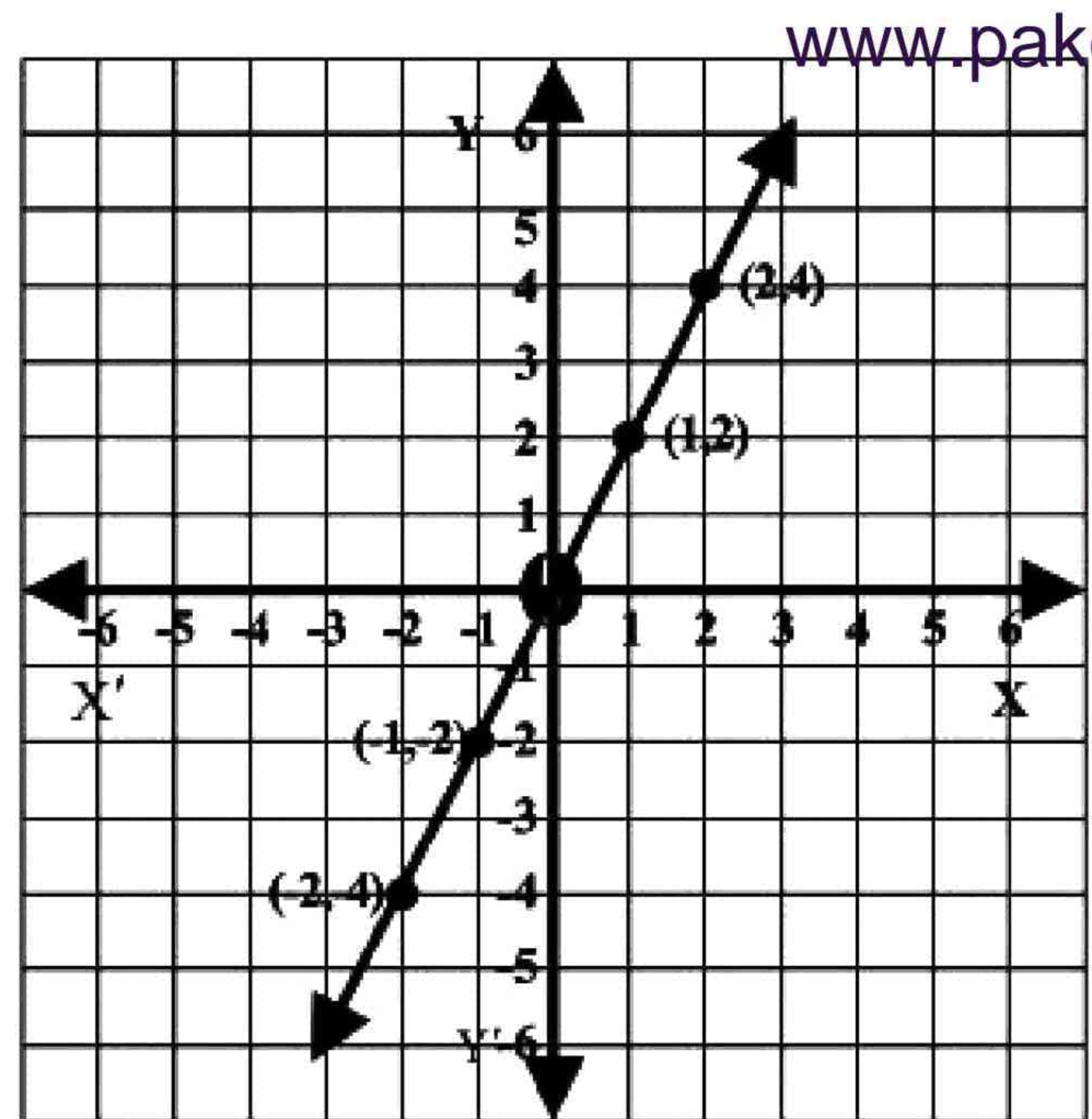
x	$y = \frac{5}{3}x$
-6	$\frac{5}{3} \times -6 = -10$
-3	$\frac{5}{3} \times -3 = -5$
0	$\frac{5}{3} \times 0 = 0$
3	$\frac{5}{3} \times 3 = 5$
6	$\frac{5}{3} \times 6 = 10$



(xi) $2x - y = 0$

$$2x = y \text{ or } y = 2x$$

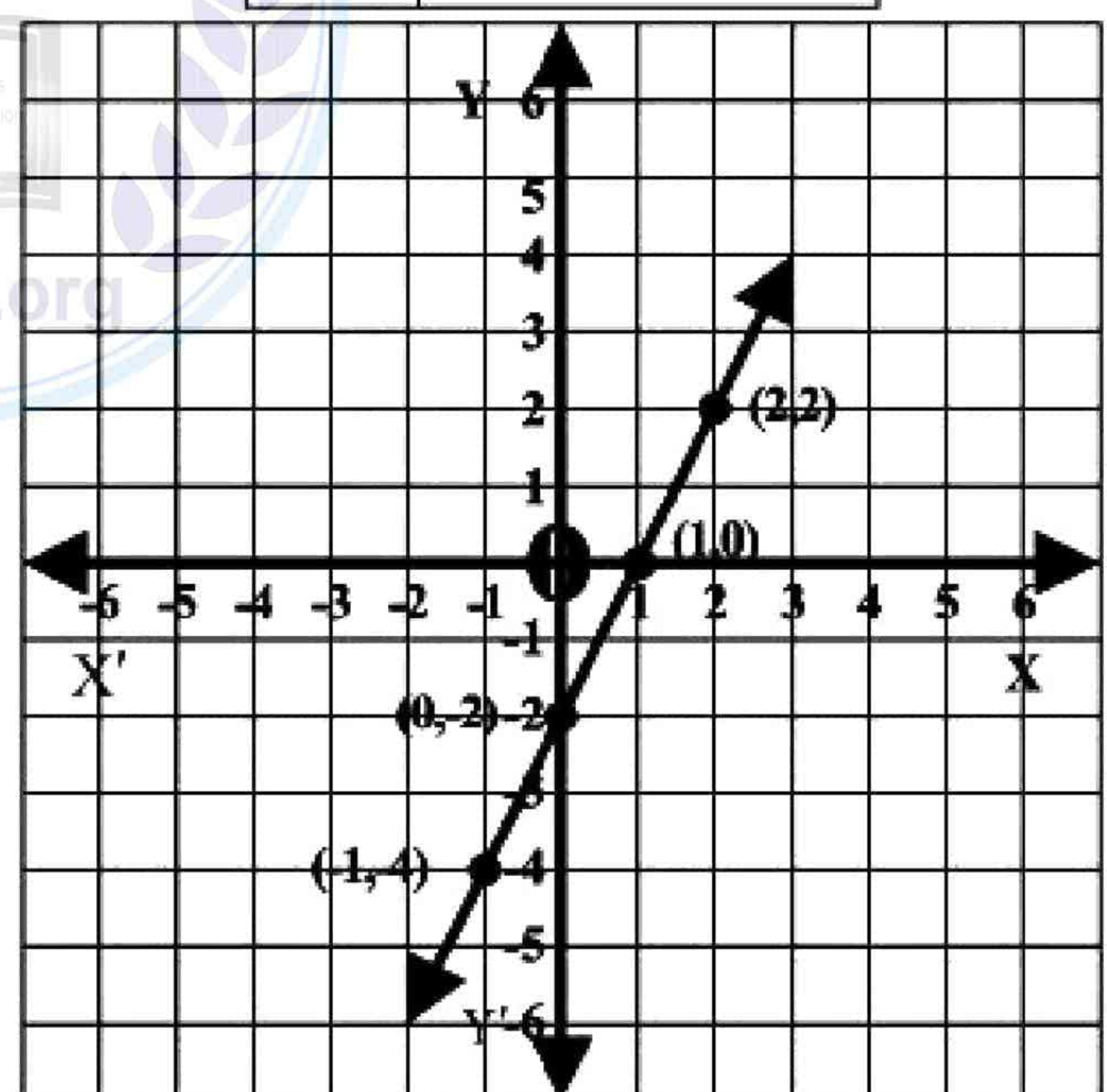
x	$y = 2x$
-2	$2(-2) = -4$
-1	$2(-1) = -2$
0	$2(0) = 0$
1	$2(1) = 2$
2	$2(2) = 4$



(xii) $2x - y = 2$

$$2x - 2 = y \text{ or } y = 2x - 2$$

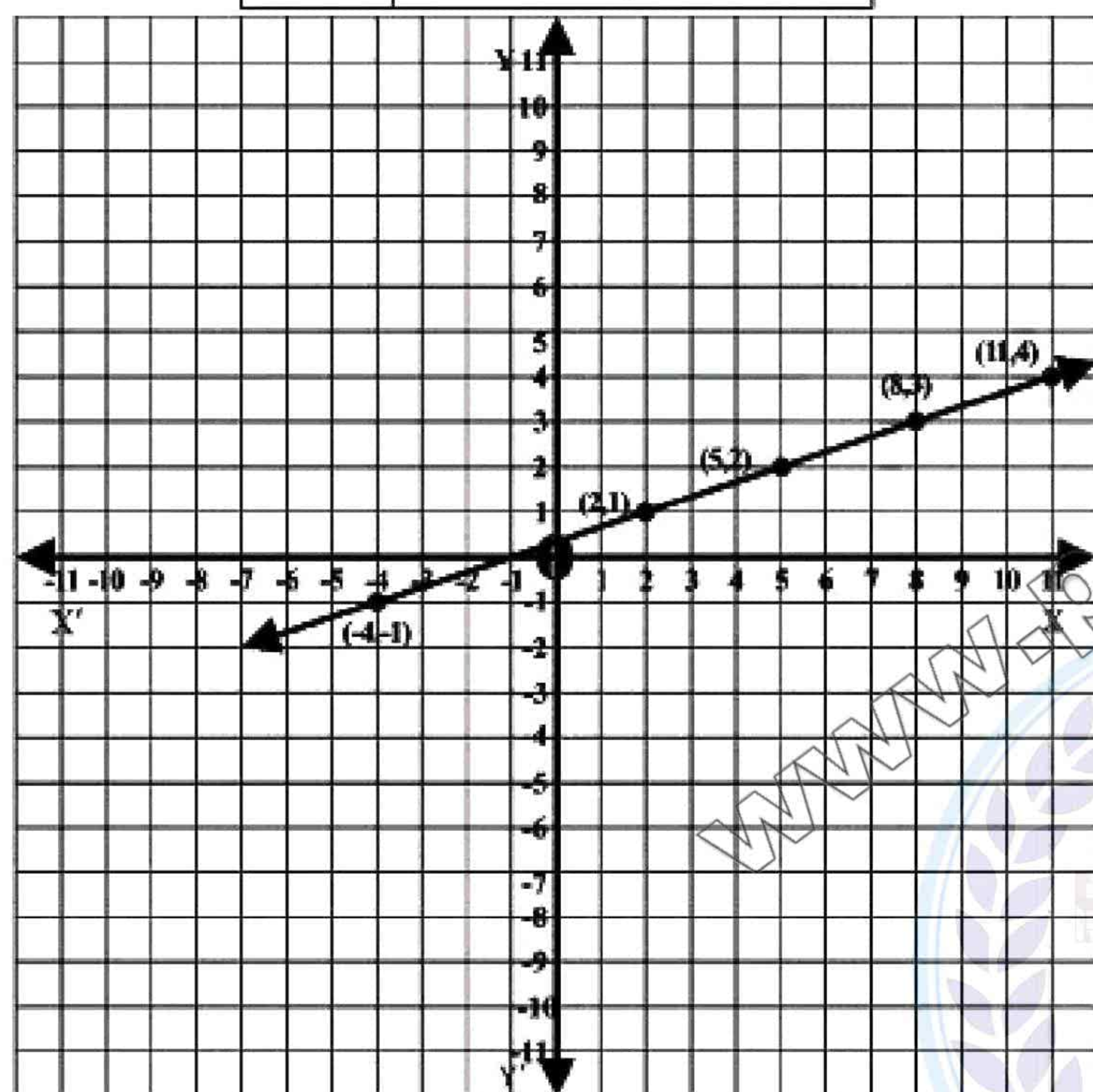
x	$y = 2x - 2$
-1	$2(-1) - 2 = -4$
0	$2(0) - 2 = -2$
1	$2(1) - 2 = 0$
2	$2(2) - 2 = 2$



(xiii) $x - 3y + 1 = 0 \Rightarrow x + 1 = +3y$

$$y = \frac{x+1}{3}$$

x	$y = \frac{x+1}{3}$
-4	$y = \frac{-4+1}{3} = -1$
2	$y = \frac{2+1}{3} = 1$
5	$y = \frac{5+1}{3} = 2$
8	$y = \frac{8+1}{3} = 3$
11	$y = \frac{11+1}{3} = 4$

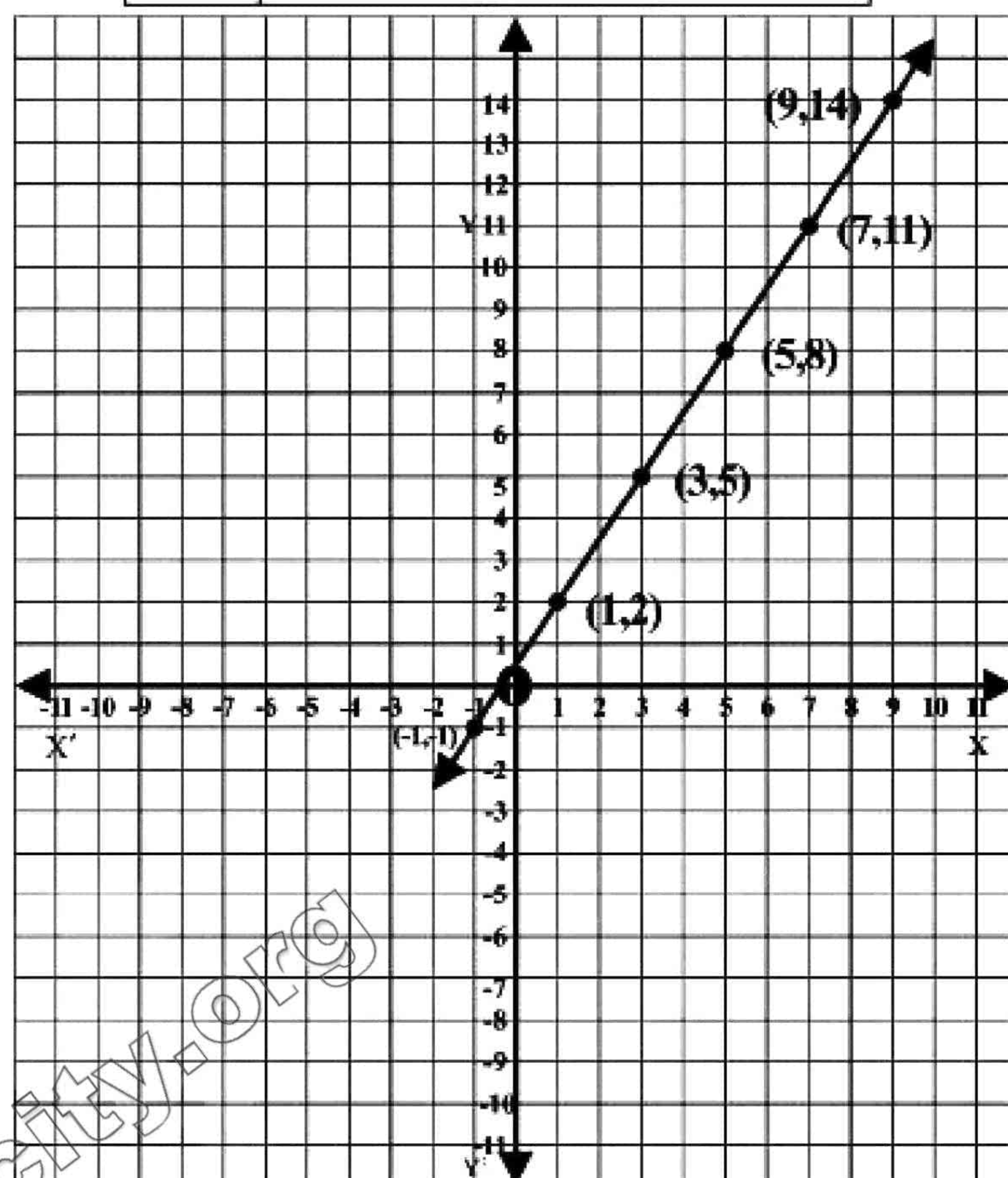


(xiv) $3x - 2y + 1 = 0$

$$y = \frac{3x+1}{2}$$

x	$y = \frac{3x+1}{2}$
-1	$y = \frac{3(-1)+1}{2} = \frac{-2}{2} = -1$
1	$y = \frac{3(1)+1}{2} = \frac{4}{2} = 2$
3	$y = \frac{3(3)+1}{2} = \frac{10}{2} = 5$

5	$y = \frac{3(5)+1}{2} = \frac{16}{2} = 8$
7	$y = \frac{3(7)+1}{2} = \frac{22}{2} = 11$
9	$y = \frac{3(9)+1}{2} = \frac{28}{2} = 14$



Q.3 Are the following lines (i) parallel to x -axis (ii) parallel to y -axis

Solution:

(i) $2x - 1 = 3$

$$2x = 3 + 1$$

$$2x = 4$$

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

$x = 2$ it is a line parallel to y -axis

(ii) $x + 2 = -1$

$$x = -1 - 2$$

$x = -3$ it is a line parallel to y -axis

(iii) $2y + 3 = 2$

$$2y = 2 - 3$$

$$2y = -1$$

$y = \frac{-1}{2}x$ is a line parallel

to x -axis

(iv) $x + y = 0$
 $x = -y$ It is neither parallel to
 x -axis nor y -axis

(v) $2x - 2y = 0$
 $2x = 2y$
 $x = \frac{2y}{2}$
 $x = y$
 $y = x$
 It is neither parallel to x -axis nor
 y -axis

Q.4 Find the value of m and c of the
 following lines by expressing
 them in the form $y = mx + c$

Solution:

(a) $2x + 3y - 1 = 0$
 $3y = -2x + 1$
 $y = \frac{-2x + 1}{3}$
 $y = \frac{-2x}{3} + \frac{1}{3}$
 $m = -\frac{2}{3}$ and $c = \frac{1}{3}$

(b) $x - 2y = -2$
 $x + 2 = 2y$
 $\frac{x + 2}{2} = y$
 Or
 $y = \frac{x + 2}{2}$
 $y = \frac{1}{2}x + \frac{2}{2}$
 $y = \frac{1}{2}x + 1$
 So, $m = \frac{1}{2}$ $c = 1$

(c) $3x + y - 1 = 0$

$$y = 1 - 3x$$

or

$$y = -3x + 1$$

$$m = -3 \quad c = 1$$

(d) $2x - y = 7$

$$2x - 7 = y$$

Or

$$y = 2x - 7$$

$$m = 2 \quad c = -7$$

(e) $3 - 2x + y = 0$

$$y = 2x - 3$$

$$m = 2 \quad c = -3$$

(f) $2x = y + 3$

$$2x - 3 = y$$

Or

$$y = 2x - 3$$

$$m = 2 \quad c = -3$$

Q.5 Verify whether the following
 point lies on the line $2x - y + 1 = 0$
 or not

Solution:

(i) $(2, 3)$
 $2x - y + 1 = 0$
 $2(2) - 3 + 1 = 0$
 $4 - 3 + 1 = 0$
 $2 \neq 0$
 $\therefore$ The point does not lie on the
 line

(ii) $(0, 0)$
 $2x - y + 1 = 0$
 $2(0) - 0 + 1 = 0$
 $0 - 0 + 1 = 0$
 $1 \neq 0$
 $\therefore$ The point does not lie on the
 line

(iii) $(-1, 1)$
 $2x - y + 1 = 0$
 $2(-1) - 1 + 1 = 0$
 $-2 - 1 + 1 = 0$
 $-2 \neq 0$
 $\therefore$ The point does not lie on the
line

(iv) $(2, 5)$
 $2x - y + 1 = 0$
 $2(2) - 5 + 1 = 0$
 $4 - 5 + 1 = 0$
 $0 = 0$
 $\therefore$ It lies on the line

(v) $(5, 3)$
 $2x - y + 1 = 0$
 $2(5) - 3 + 1 = 0$
 $10 - 3 + 1 = 0$
 $8 \neq 0$
 $\therefore$ It does not lie on the line



Exercise 8.2

Q.1

Draw the conversion graph between liters and gallons using the relation 9 liters = 2 gallons (approximately) and taking liters along horizontal axis and gallons along vertical axis from the graph read.

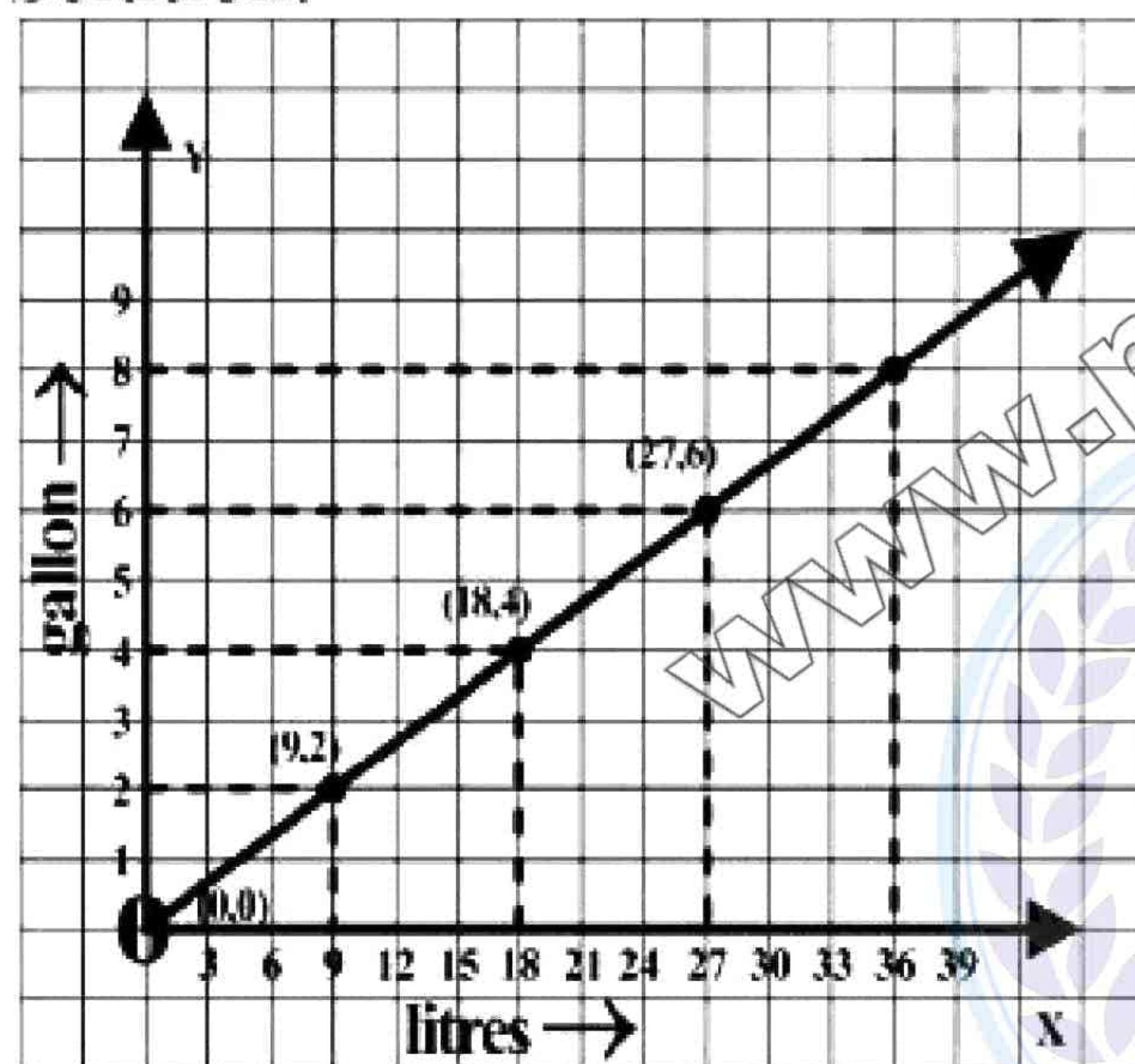
(i) The number of gallons in 18 liters.

(ii) The number of liters in 8 gallons.

We know 9 liters = 2 gallons

$$1 \text{ liters} = \frac{2}{9} \text{ gallons}$$

Solution:



$$y = \frac{2}{9}x$$

x	0	9	18	27
y	0	2	4	6

18 liters = 4 gallons

Scale

Along X-axis

3 liters = 1 box

Along Y-axis

1 gallon = 1 box

(i) The number of gallons in 18 liters.

Ans: =4 Gallons

(ii) The number of liters in 8 gallons.

Ans: =36 Liters

Q.2 On 15-03-2008 the exchange rate of Pakistan currency and Saudi Riyal was as under 1SRial = 16.70 rupees

If Pakistani currency y is an expression of S. Riyal x expressed under. The rule $y = 16.70 x$ then draw the conversion graph between these two currencies by taking S. riyal along x axis.

1SR = 16.70 Rupees

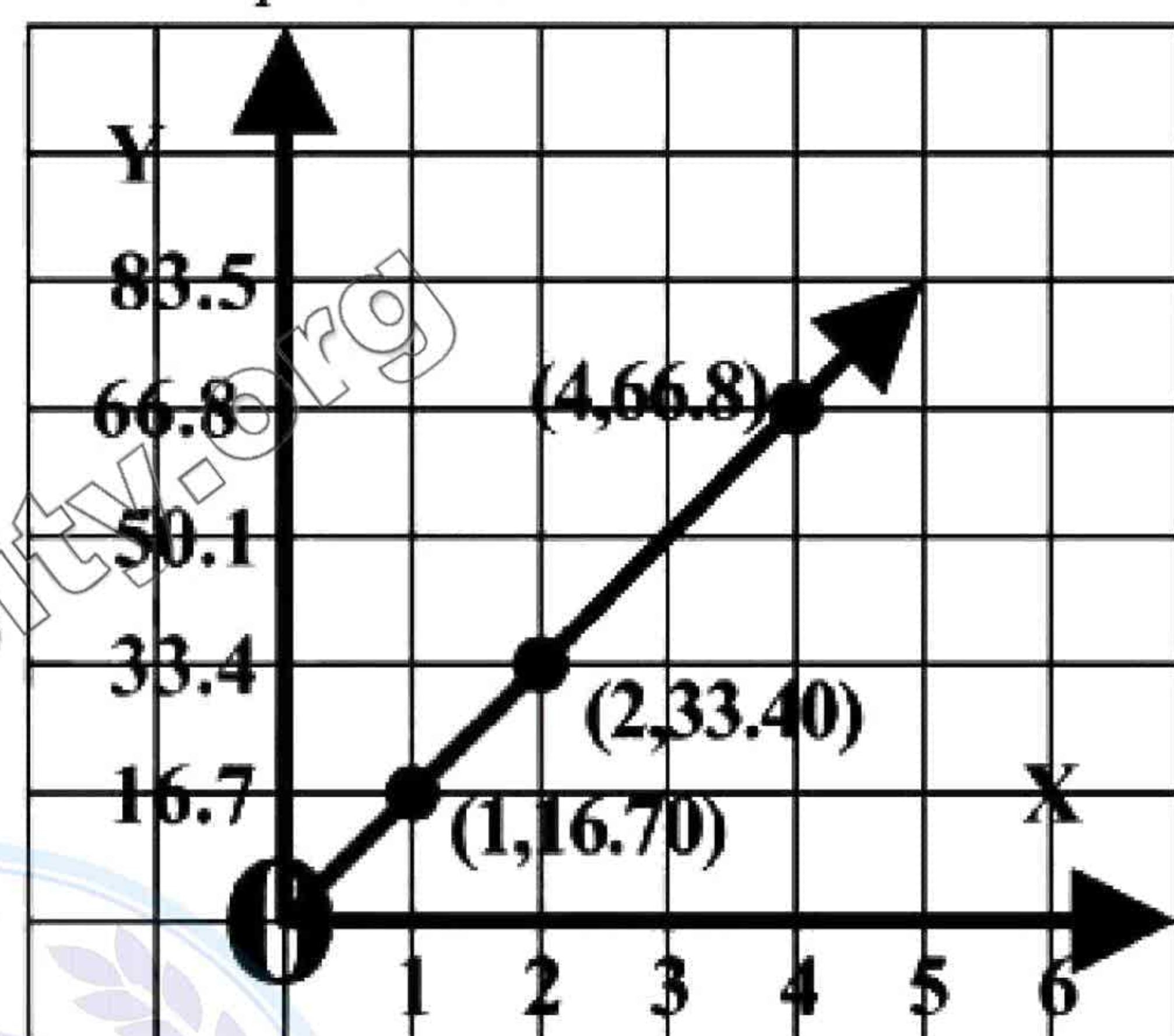
Scale

Along X-axis

1 SR = 1 box

Along Y-axis

Rupees 16.7 = 1 box



x	1	2	3	4
y	16.70	33.4	50.1	66.8

Q.3 Sketch the graph of each of the following lines.

(a) $x - 3y + 2 = 0$

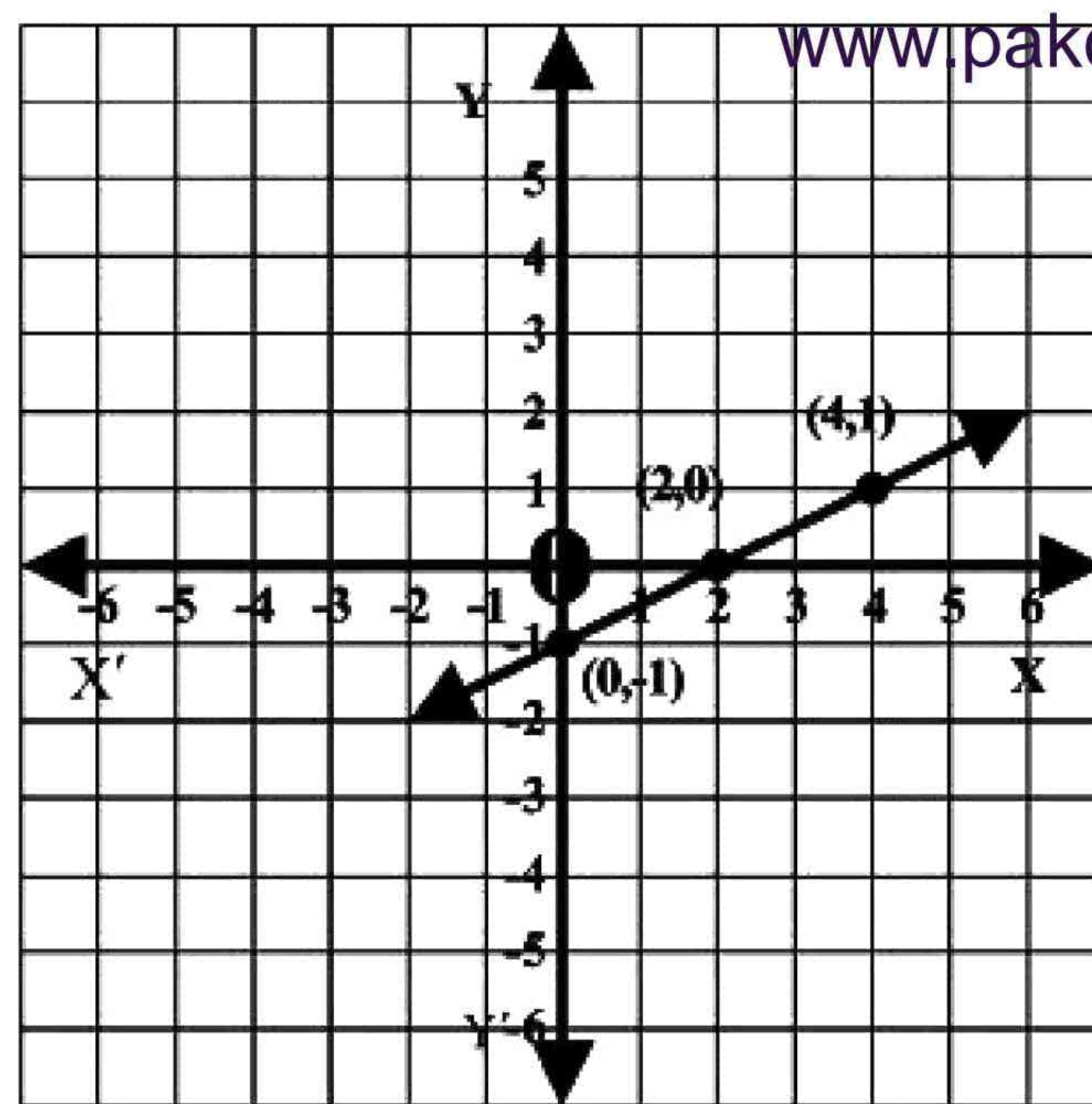
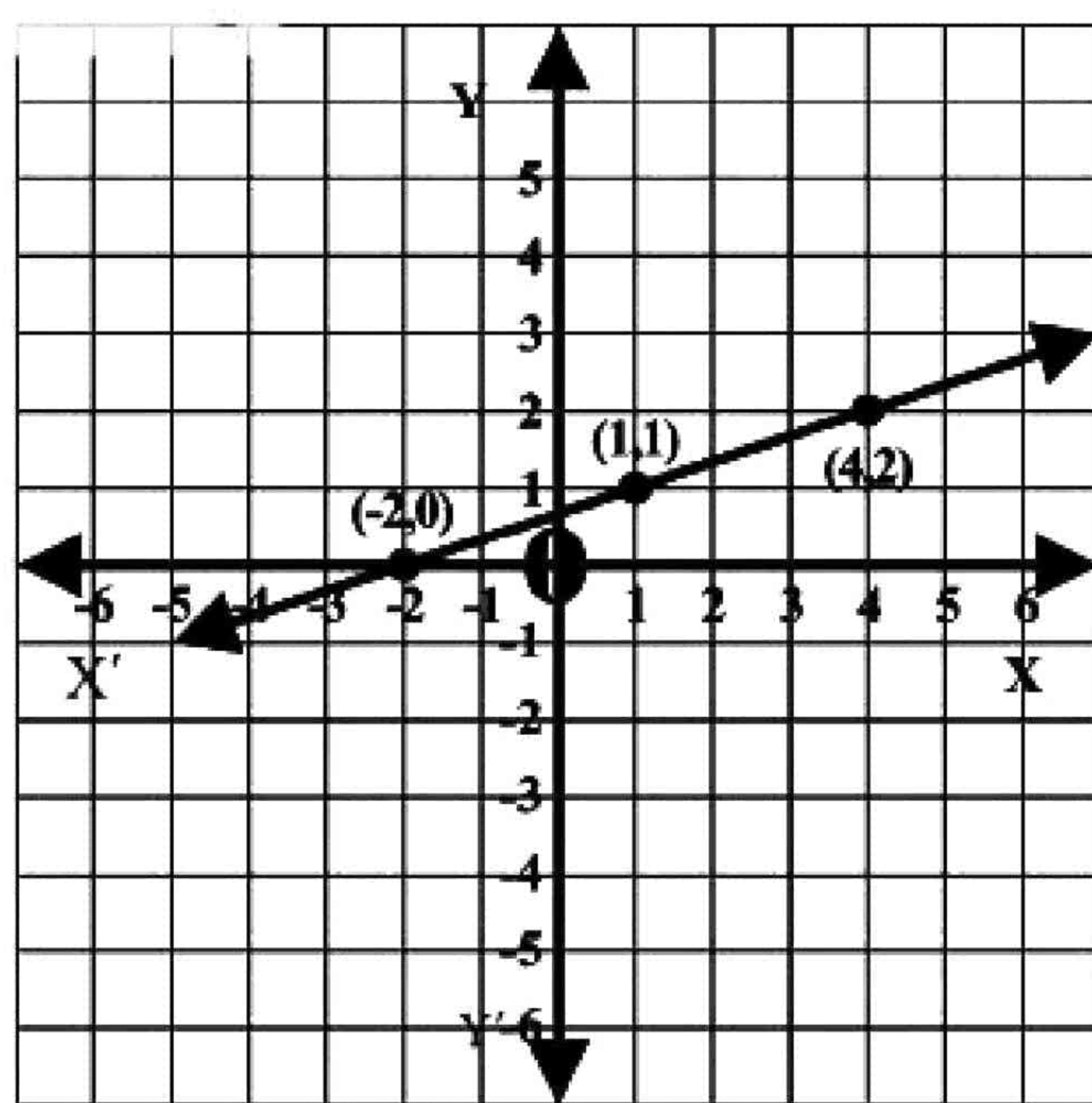
$$x + 2 = 3y$$

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

Or

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

x	1	4	-2
y = $\frac{x + 2}{3}$	1	2	0



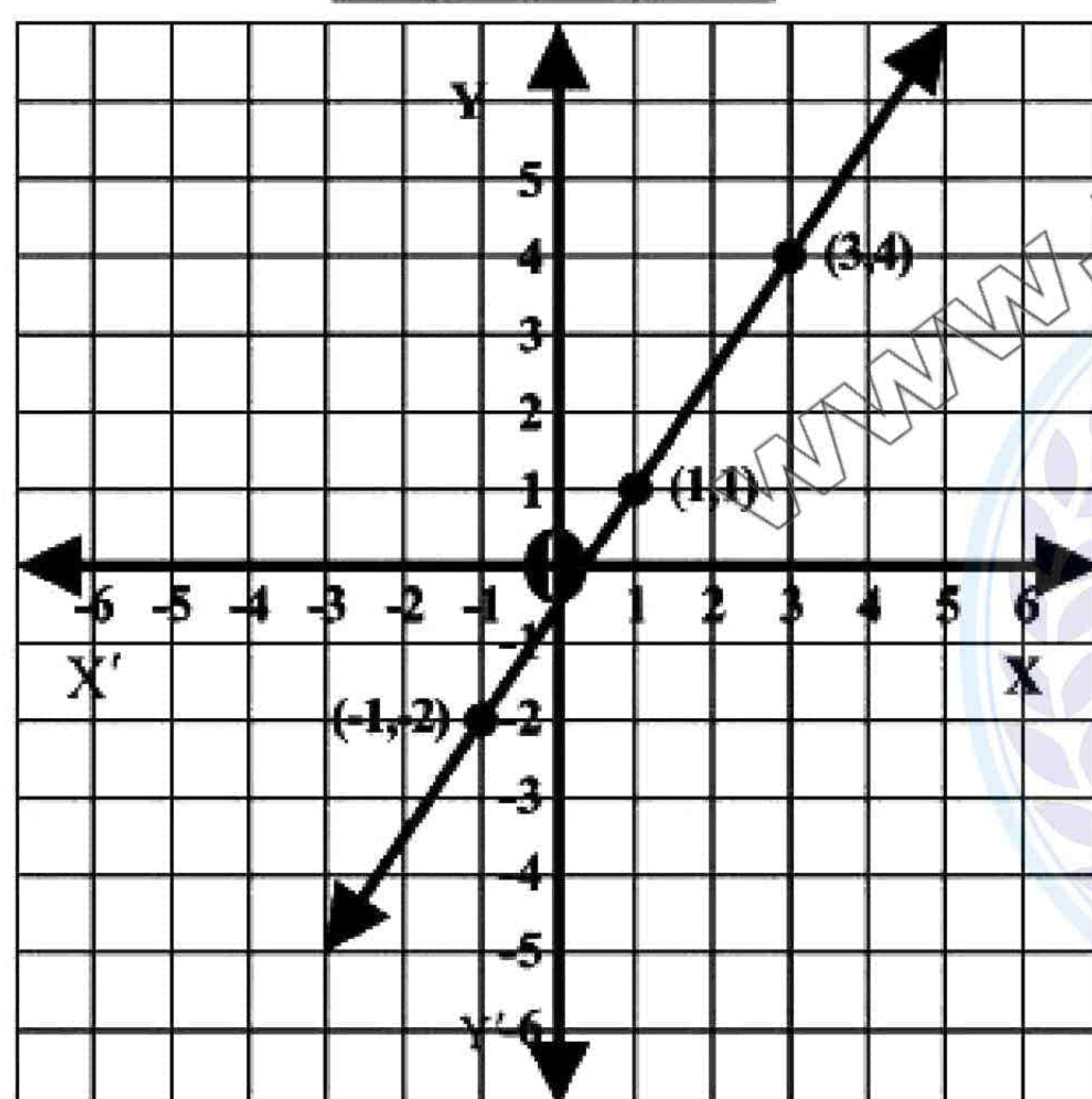
(b) $3x - 2y - 1 = 0$

$$3x - 1 = 2y$$

$$\frac{3x - 1}{2} = y$$

$$y = \frac{3x - 1}{2}$$

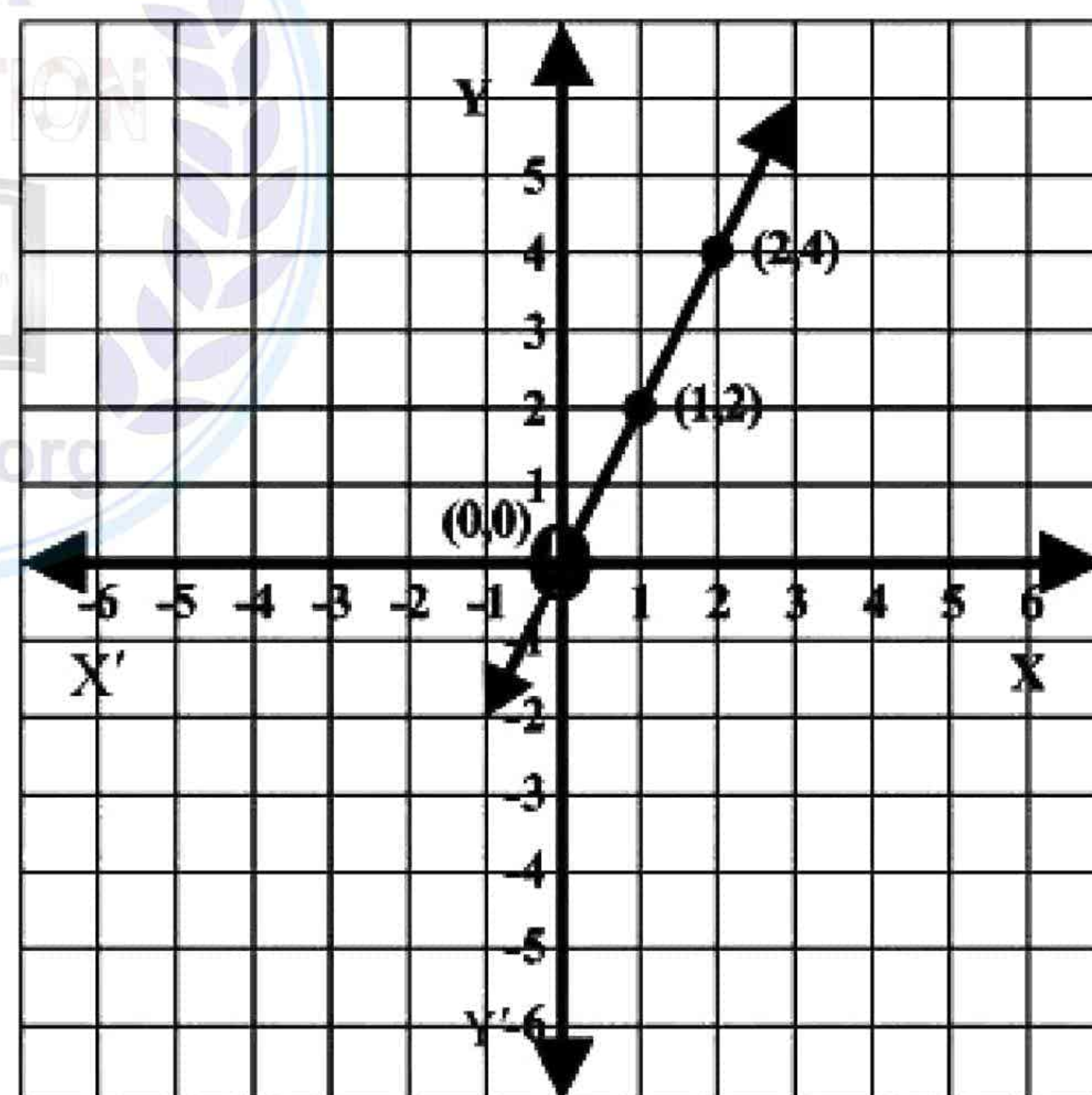
x	1	3	-1
y	1	4	-2



(d) $y - 2x = 0$

$$y = 2x$$

x	0	1	2
y	0	2	4



(c) $2y - x + 2 = 0$

$$2y = x - 2$$

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

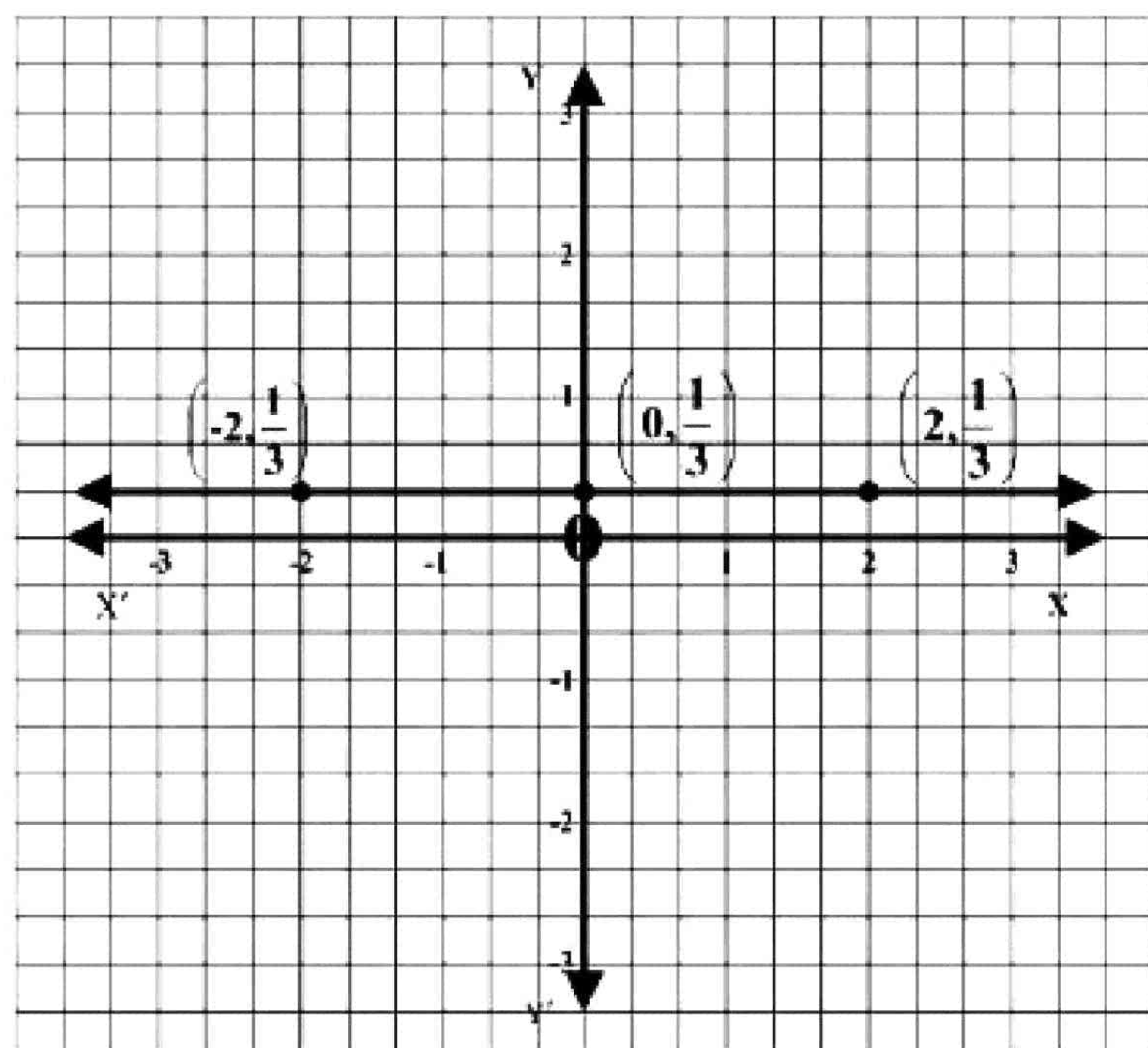
x	0	2	4
y	-1	0	1

(e) $3y - 1 = 0$

$$3y = 1$$

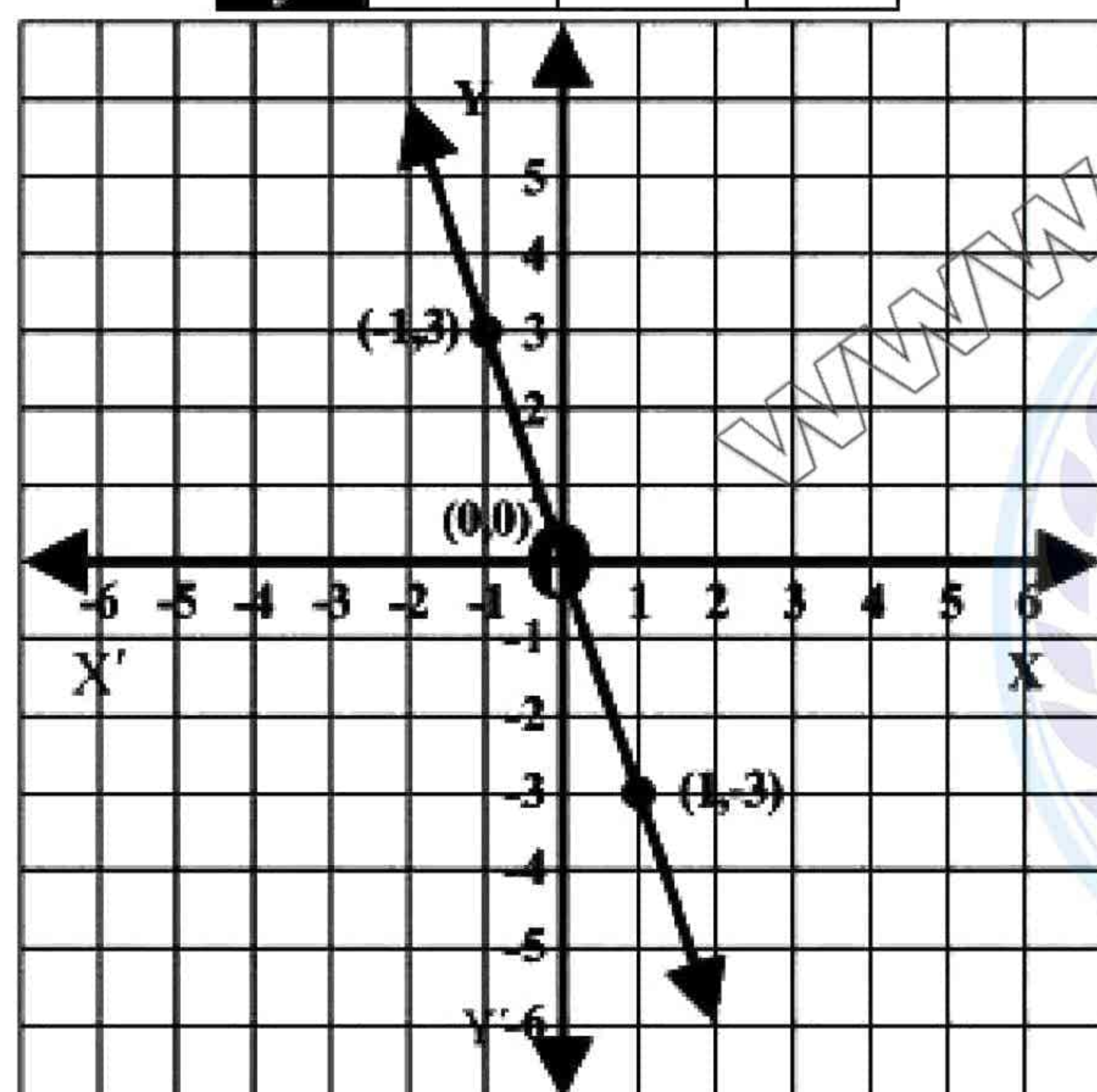
$$y = \frac{1}{3}$$

x	-2	0	2
y	$\frac{1}{3}$	$\frac{1}{3}$	$\frac{1}{3}$



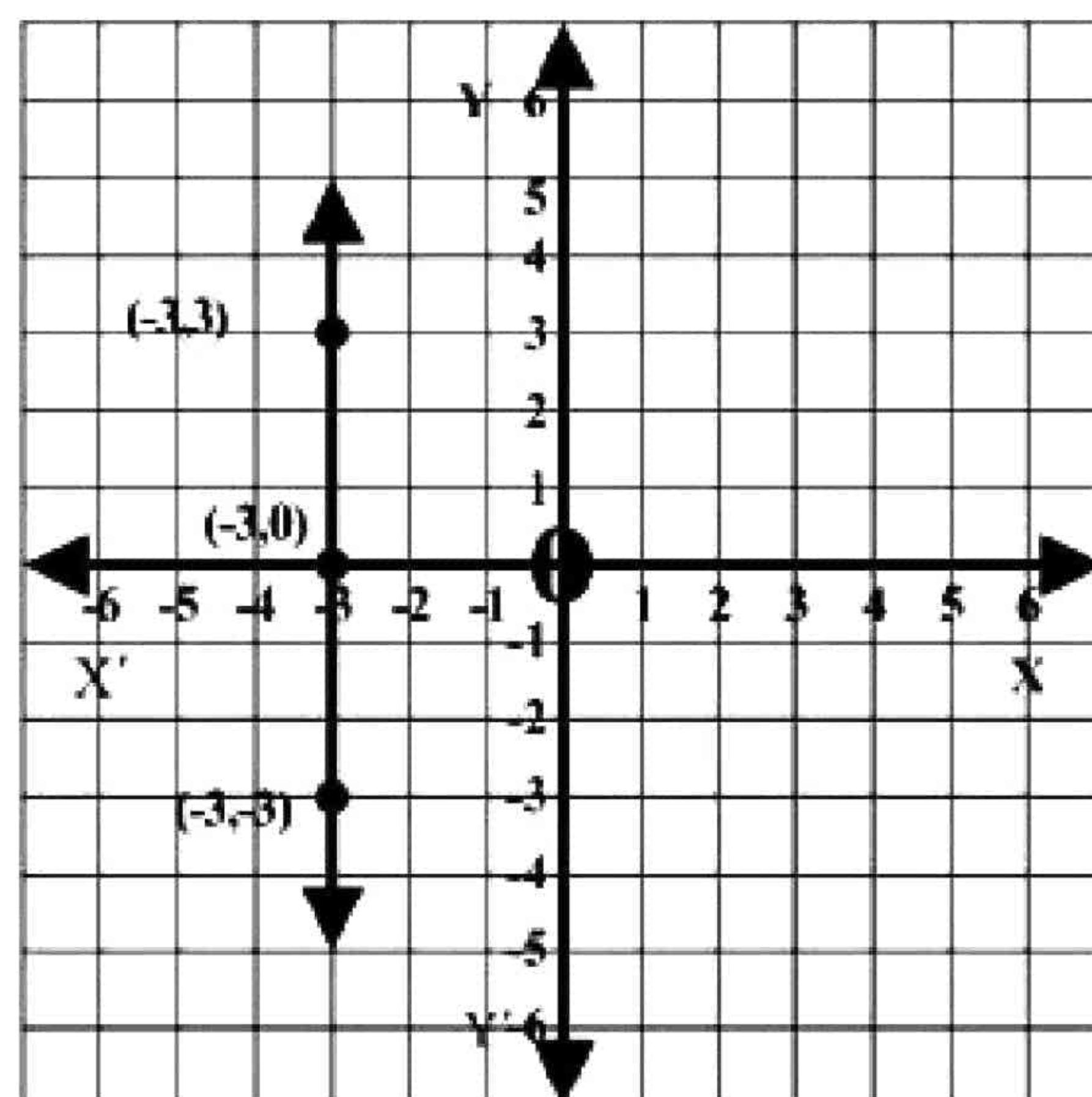
(f) $y + 3x = 0$
 $y = -3x$

x	1	-1	0
y	-3	3	0



(g) $2x + 6 = 0$
 $2x = -6$
 $x = \frac{-6}{2}$
 $x = -3$

x	-3	-3	-3
y	3	0	-3



Q.4 Draw the graph for following relations

(i) One mile = 1.6 km

$$y = 1.6x$$

Scale

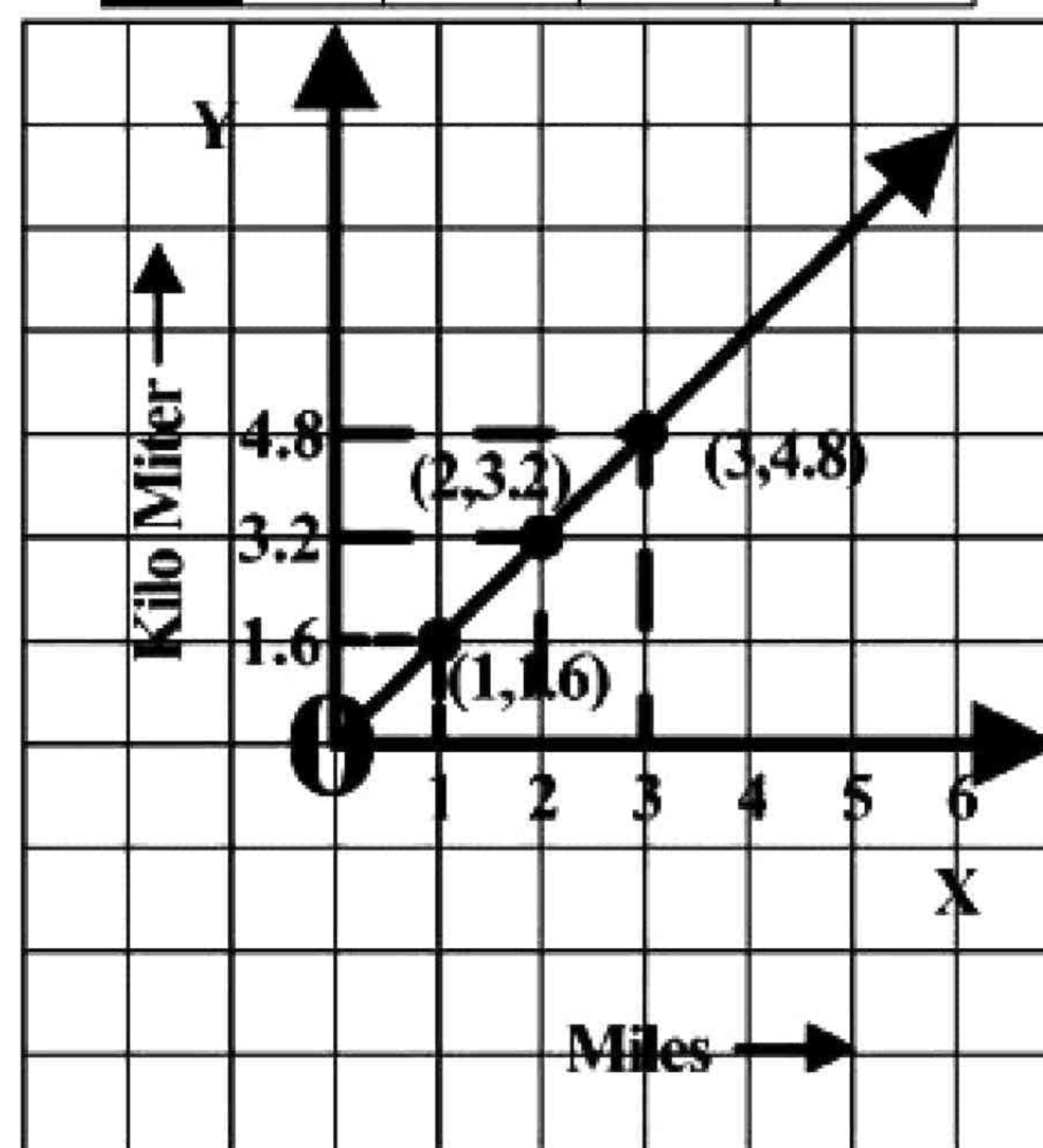
Along x -axis

1 Big Square = 1 Unit

Along y -axis

1 Big Square = 1.6 Units

x	0	1	2	3
y	0	1.6	3.2	4.8



- (ii) One acre = 0.4 hectare
 $y = 0.4x$

x	2	4
y	0.8	1.6

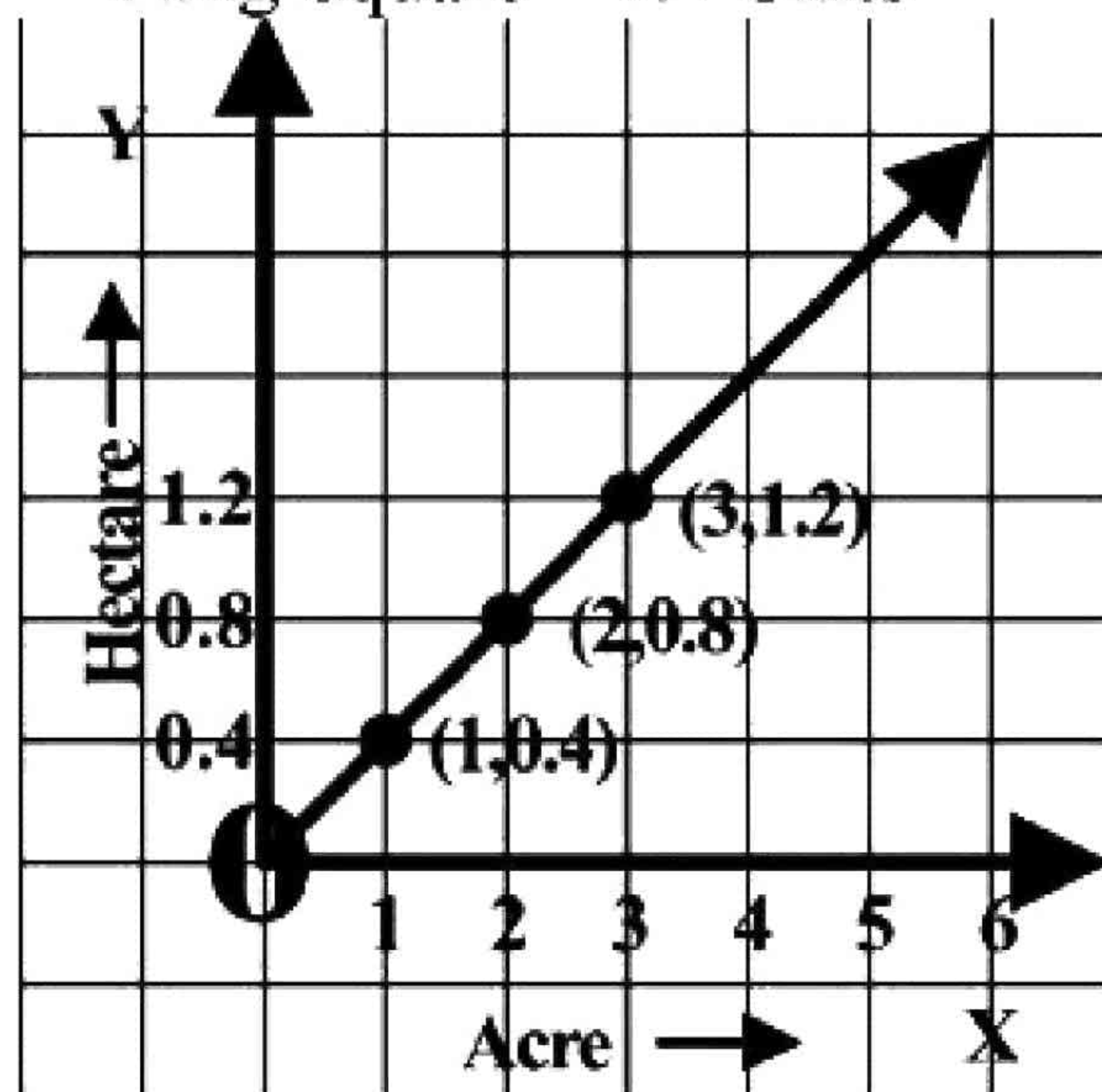
Scale

Along x -axis

1 Big Square = 1 Unit

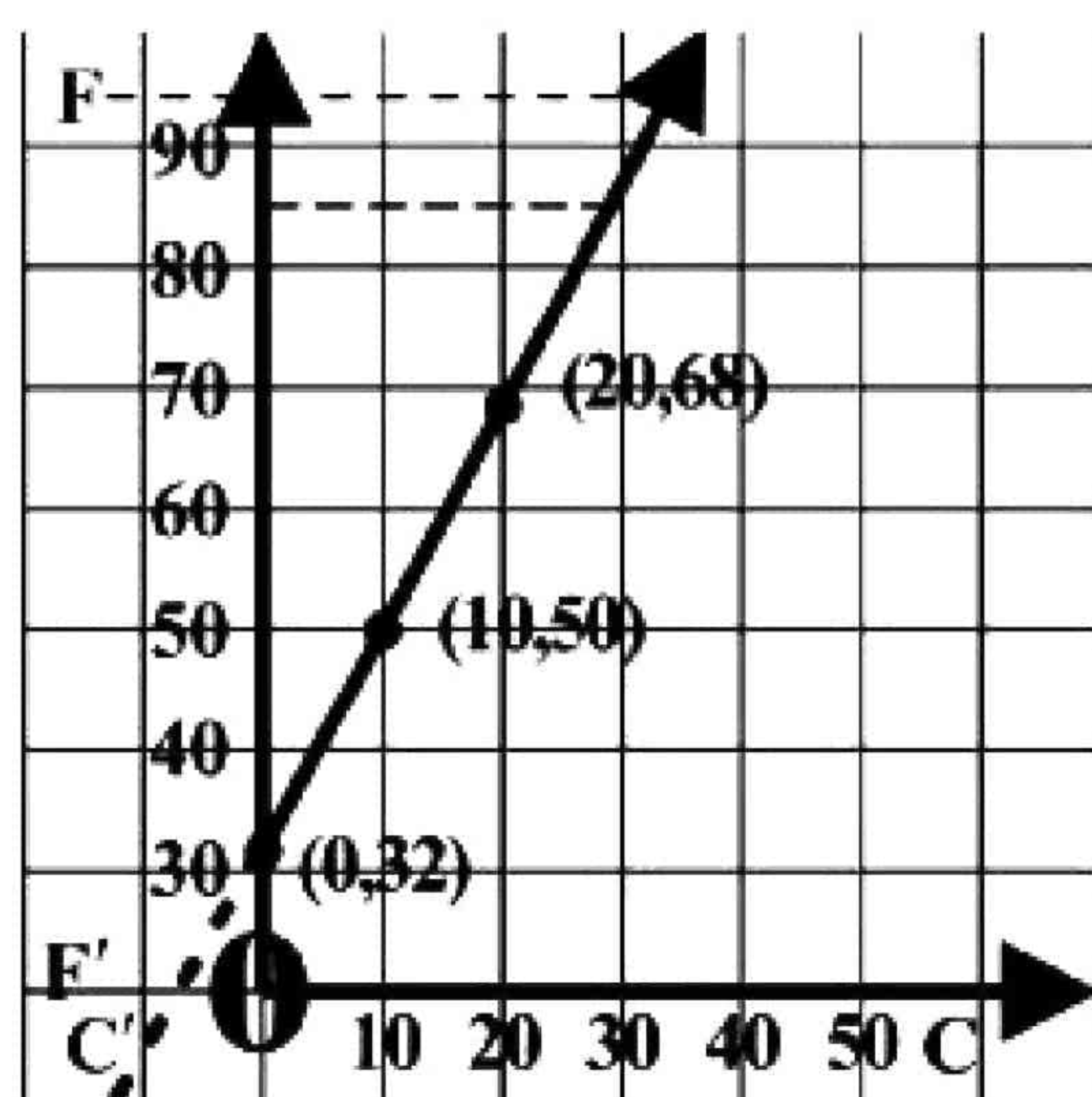
Along y -axis

1 Big Square = 0.4 Units



- (iii) $F = \frac{9}{5}c + 32$

C	$F = \frac{9}{5}C + 32$
5	$\frac{9}{5} \times 5 + 32 = 41$
10	$\frac{9}{5} \times 10 + 32 = 50$
15	$\frac{9}{5} \times 15 + 32 = 59$
20	$\frac{9}{5} \times 20 + 32 = 68$



10° = Length of square

Where value of $c = x$ and value of $f = y$

x	5	10	15	20
y	41	50	59	68

- (iv) 1 Rupee = $\frac{1}{86}$ \$

Scale

Along x -axis

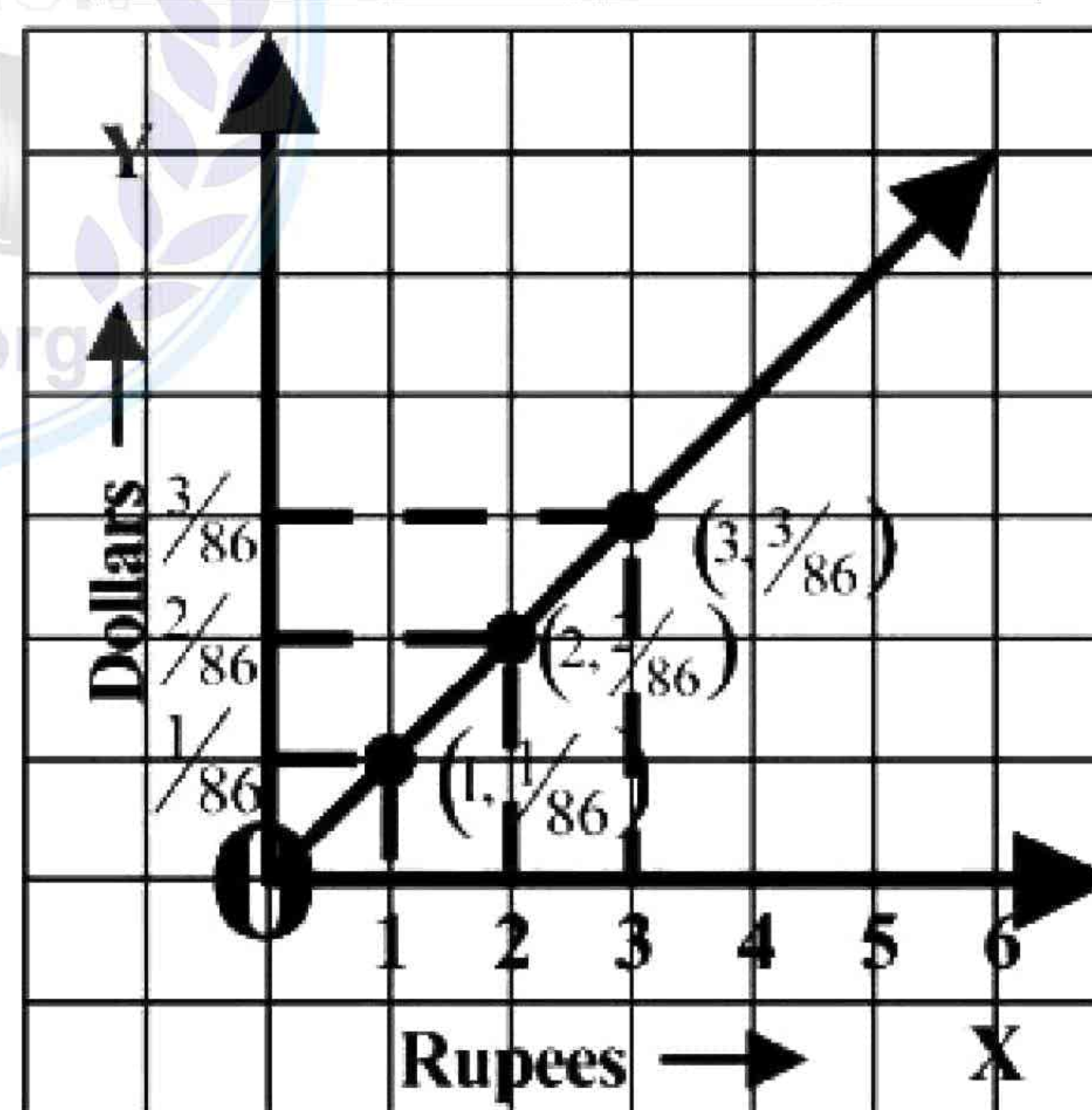
1 Big Square = 1 Unit

Along y -axis

1 Big Square = $\frac{1}{86}$ Units

$$y = \frac{1}{86}x$$

x	0	1	2	3
y	0	$\frac{1}{86}$	$\frac{2}{86}$	$\frac{3}{86}$



Exercise 8.3

Q.1

$$x + y = 0 \text{ — (I) and}$$

$$2x - y + 3 = 0 \text{ — (II)}$$

From equation I
from equation

II

$$y = -x$$

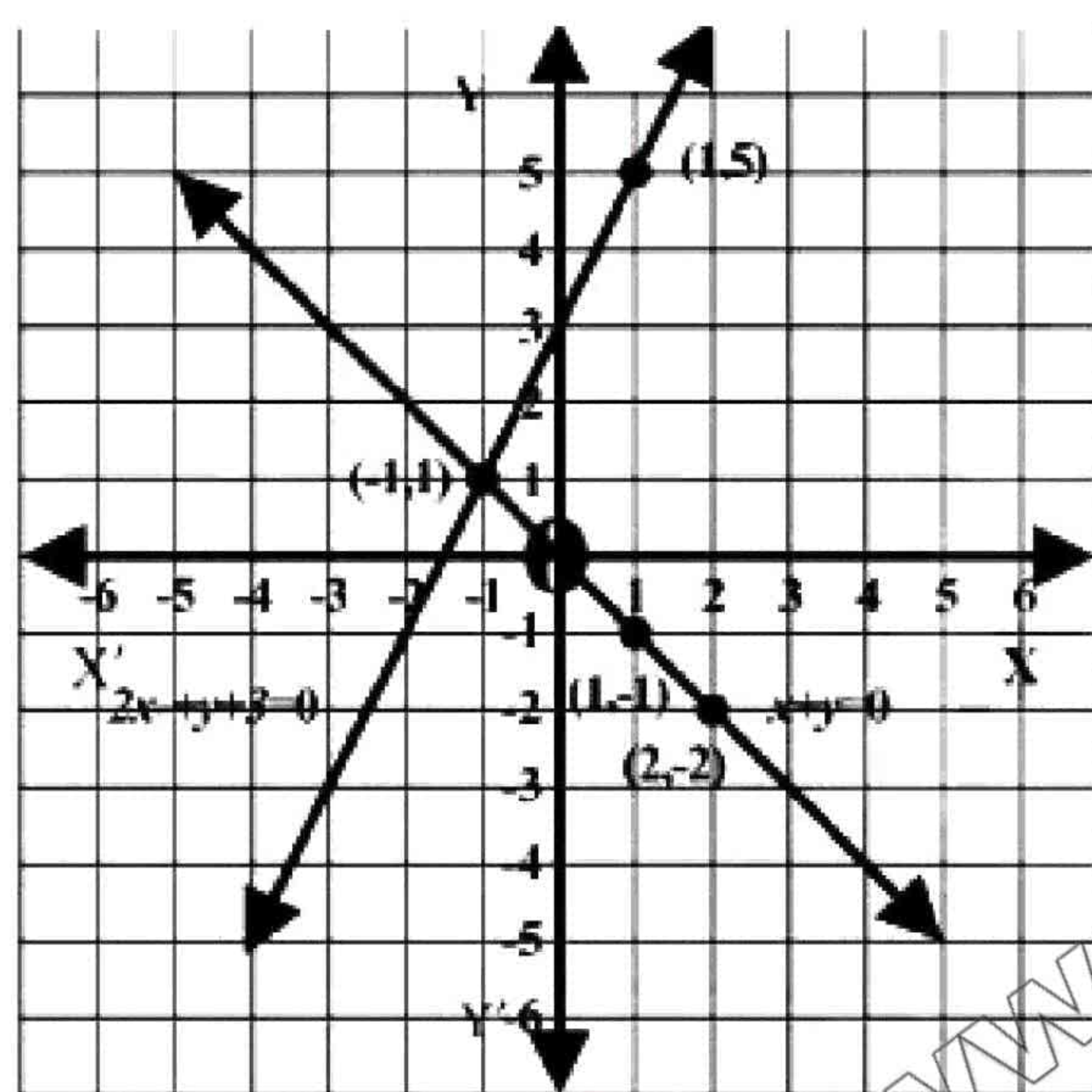
$$2x - y + 3 = 0$$

$$2x + 3 = y$$

$$y = 2x + 3$$

x	y = -x	(x, y)
1	-1(1) = -1	(1, -1)
2	-(2) = -2	(2, -2)

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



The point of intersection is a solution set

$$\text{Solution Set} = \{(-1, 1)\}$$

Q.2

$$x - y + 1 = 0$$

$$x - 2y = -1$$

$$x + 1 = y$$

$$x + 1 = 2y$$

$$y = x + 1$$

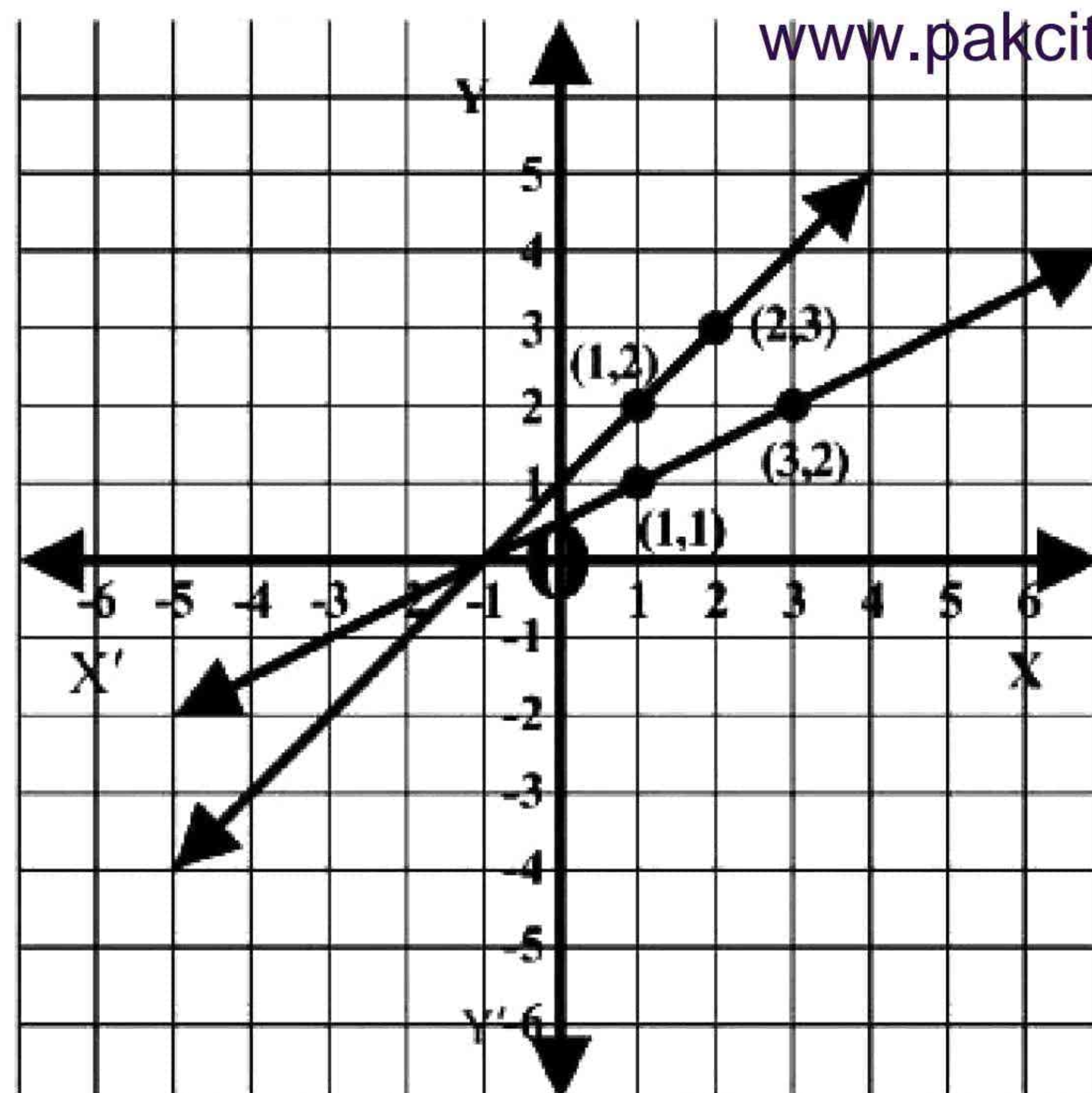
$$\frac{x+1}{2} = y$$

Or

$$y = \frac{x+1}{2}$$

x	y = x + 1	(x, y)
1	1 + 1 = 2	(1, 2)
2	2 + 1 = 3	(2, 3)

x	y = \frac{x+1}{2}	(x, y)
1	\frac{1+1}{2} = \frac{2}{2} = 1	(1, 1)
3	\frac{3+1}{2} = \frac{4}{2} = 2	(3, 2)



Point of intersection is a solution

set

$$\text{Solution Set} = \{(-1, 0)\}$$

Q.3

$$2x + y = 0$$

$$x + 2y = 2$$

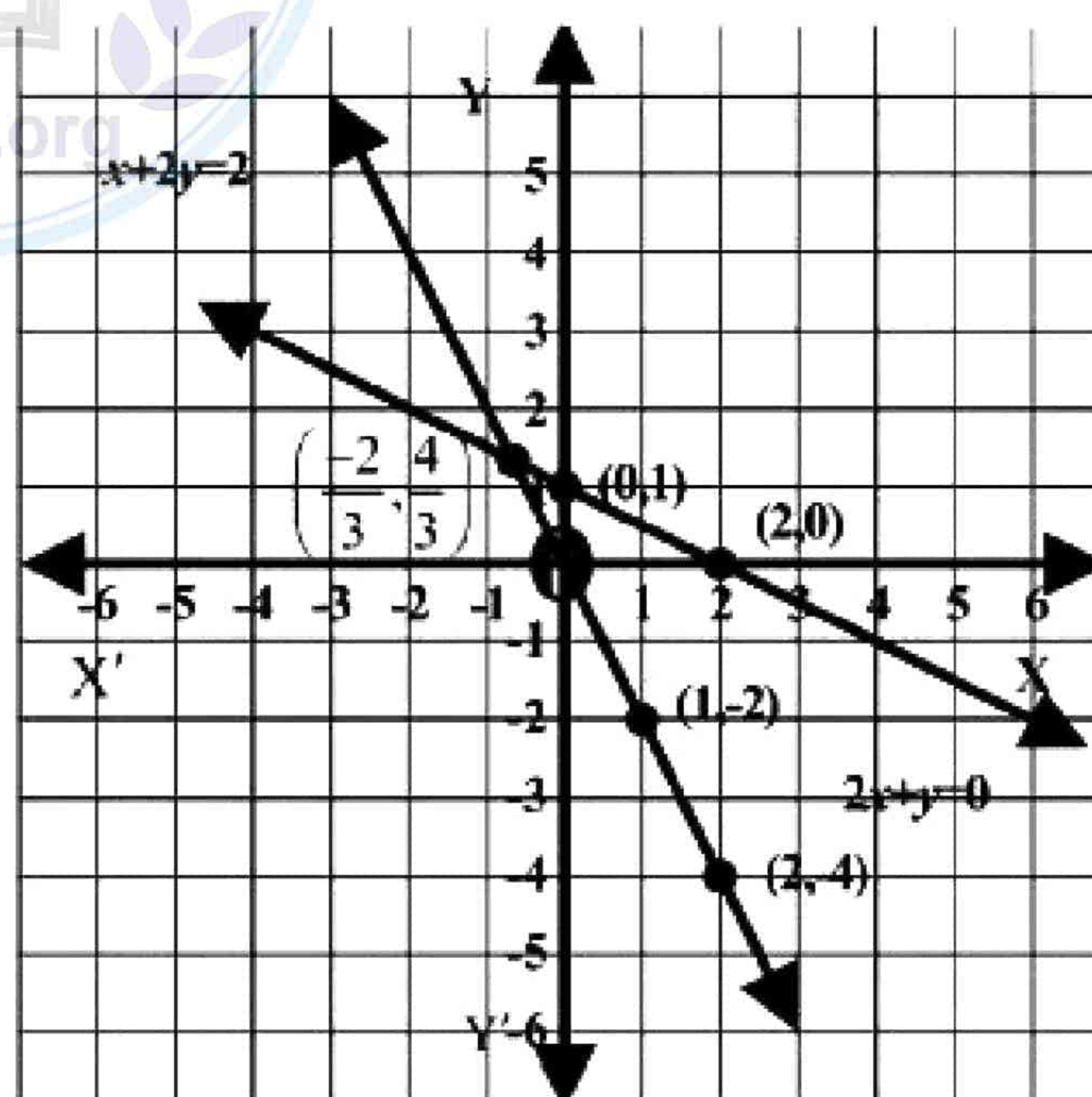
$$y = -2x$$

$$2y = 2 - x$$

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

x	y = -2x	(x, y)
1	-2(1) = -2	(1, -2)
2	-2(2) = -4	(2, -4)

x	y = \frac{2-x}{2}	(x, y)
0	\frac{2-0}{2} = \frac{2}{2} = 1	(0, 1)
2	\frac{2-2}{2} = \frac{0}{2} = 0	(2, 0)



Point of intersection is a solution

$$\text{Solution Set} = \left\{ \left(-\frac{2}{3}, \frac{4}{3} \right) \right\}$$

Q.4 $x + y - 1 = 0$

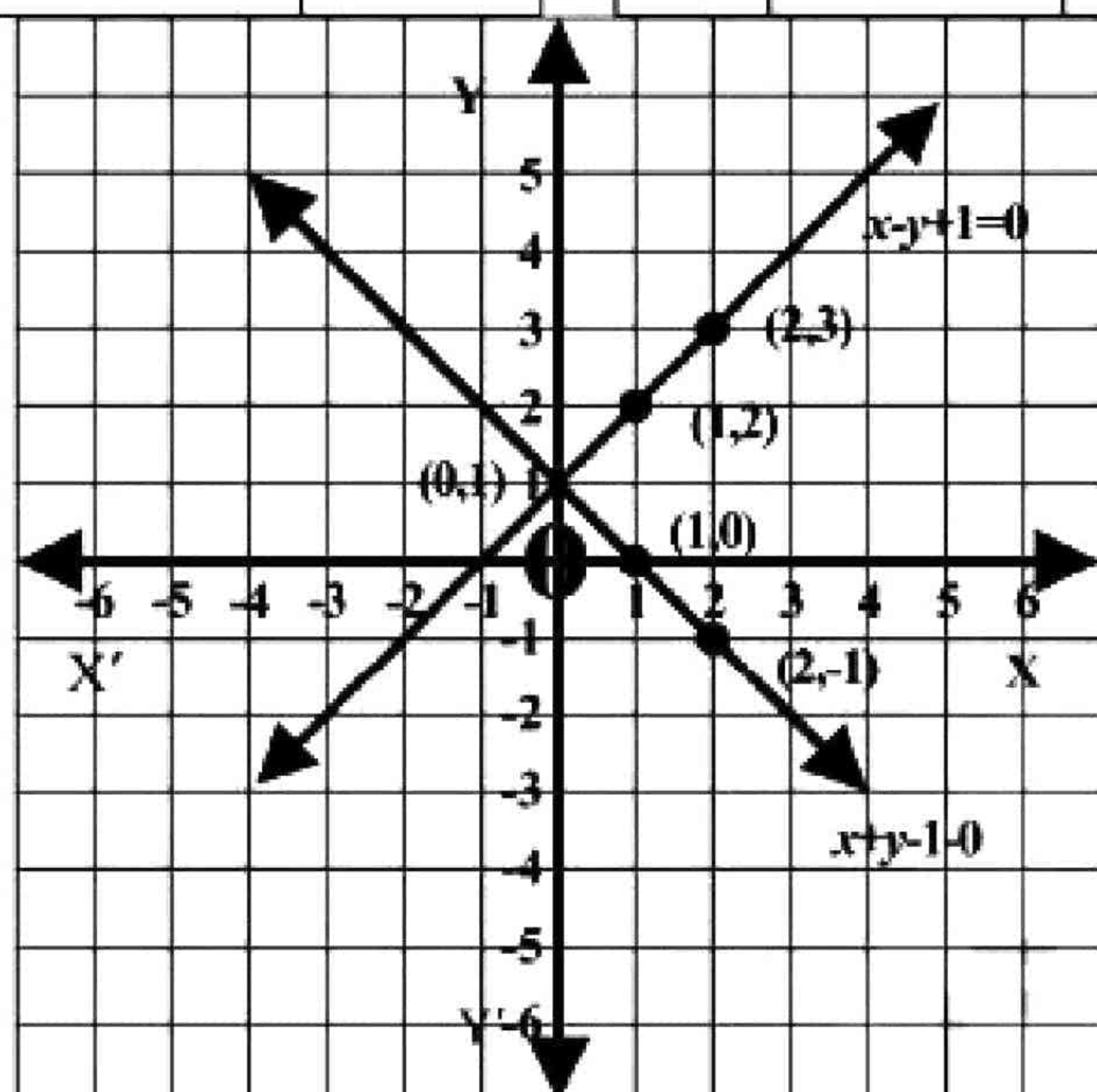
$x - y + 1 = 0$

$y = 1 - x$

$x + 1 = y$ Or $y = x + 1$

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

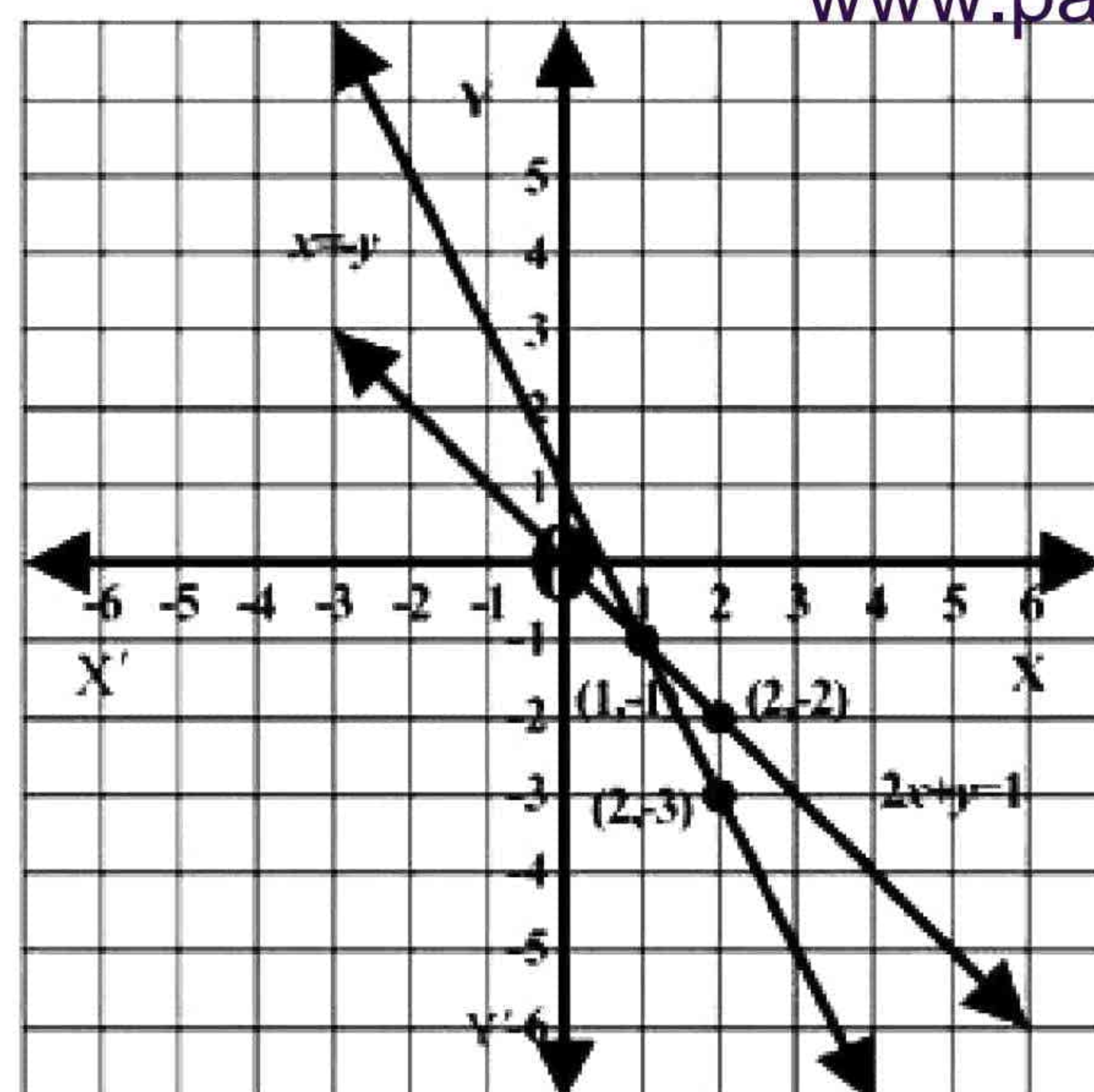
x	$y = x + 1$	(x, y)
1	$1 + 1 = 2$	(1, 2)
2	$2 + 1 = 3$	(2, 3)



Point of intersection is a solution

set

Solution Set = $\{(0, 1)\}$



Point of intersection is a solution

set

Solution Set = $\{(1, -1)\}$

Q.5 $2x + y - 1 = 0$

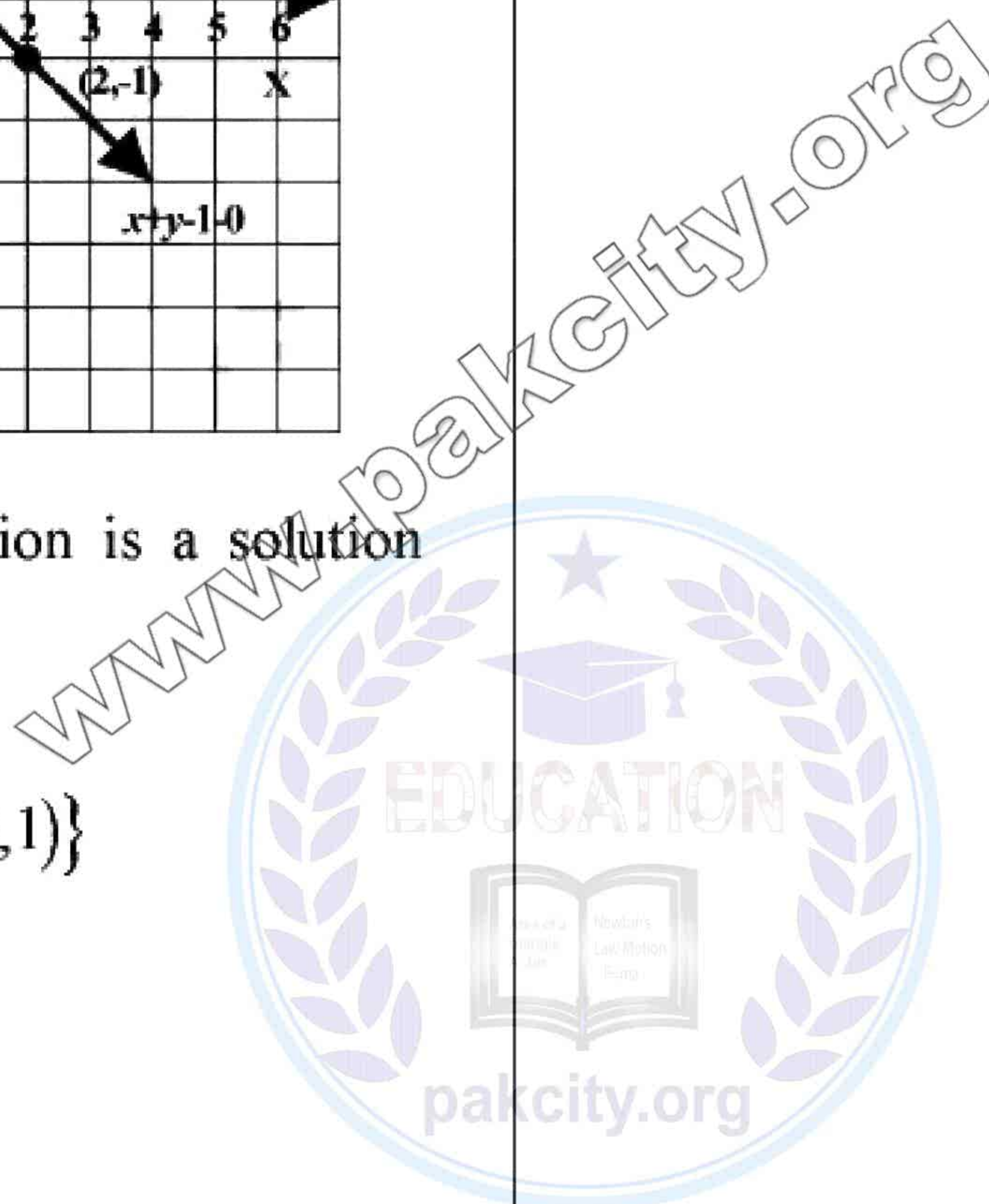
$x = -y$

$y = 1 - 2x$

$y = -x$

x	$y = 1 - 2x$	(x, y)
1	$1 - 2(1) = -1$	(1, -1)
2	$1 - 2(2) = -3$	(2, -3)

x	$y = -x$	(x, y)
1	$-(1) = -1$	(1, -1)
2	$-(2) = -2$	(2, -2)



Review Exercise 8

Q.1 Choose the correct answer

- (i) If $(x-1, y+1) = (0, 0)$, Then (x, y) is
 (a) $(1, -1)$ (b) $(-1, 1)$
 (c) $(1, 1)$ (d) $(-1, -1)$
- (ii) If $(x, 0) = (0, y)$ Then (x, y) is
 (a) $(0, 1)$ (b) $(1, 0)$
 (c) $(0, 0)$ (d) $(1, 1)$
- (iii) Point $(2, -3)$ lies in quadrant
 (a) I (b) II
 (c) III (d) IV
- (iv) Point $(-3, -3)$ lies in quadrant
 (a) I (b) II
 (c) III (d) IV
- (v) If $y = 2x + 1, x = 2$ Then y is
 (a) 2 (b) 3
 (c) 4 (d) 5
- (vi) Which order pair satisfy the equation $y = 2x$
 (a) $(1, 2)$ (b) $(2, 1)$
 (c) $(2, 2)$ (d) $(0, 1)$

ANSWER KEYS

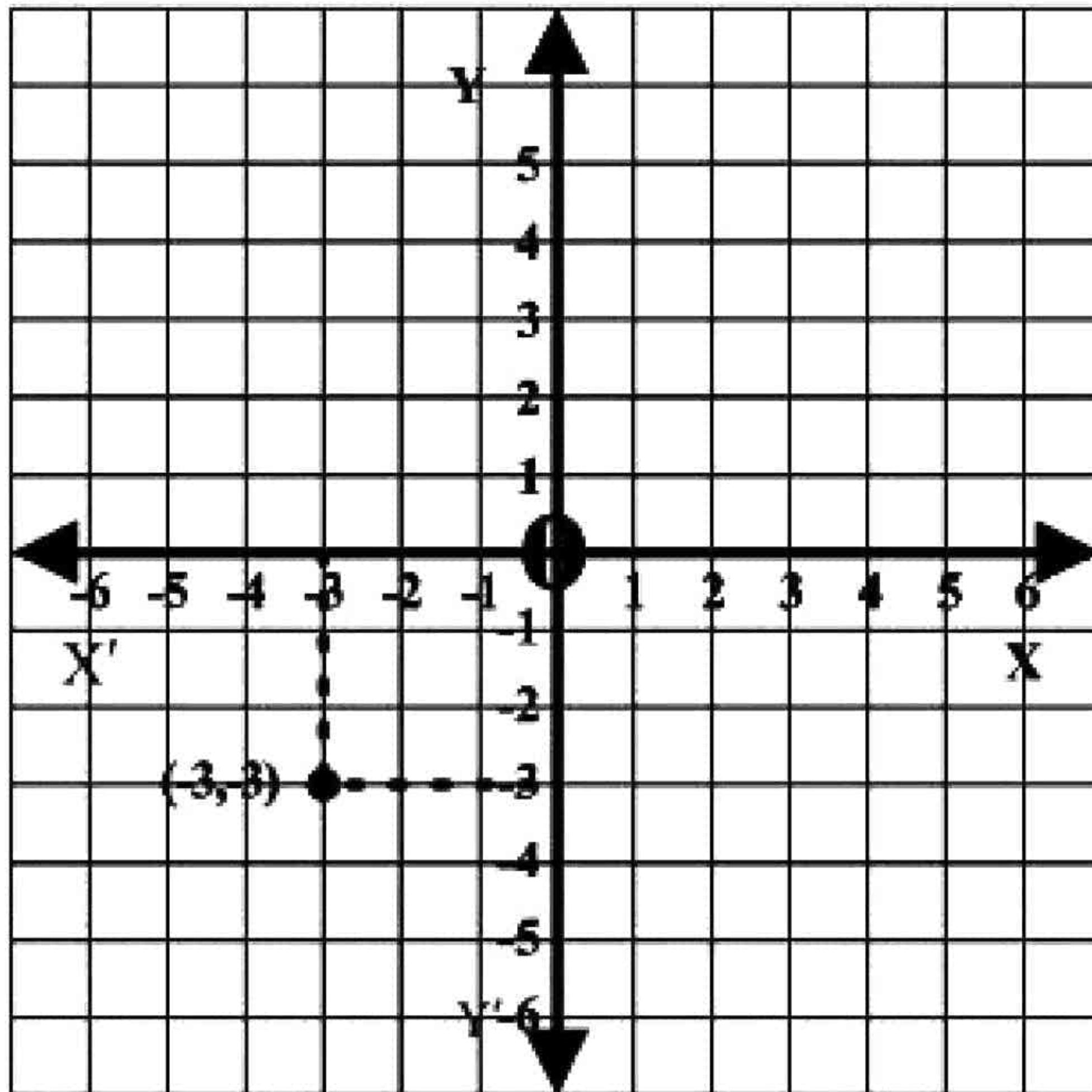
1	2	3	4	5	6
a	c	d	c	d	a

Q.2 Identify the following statement as true or false

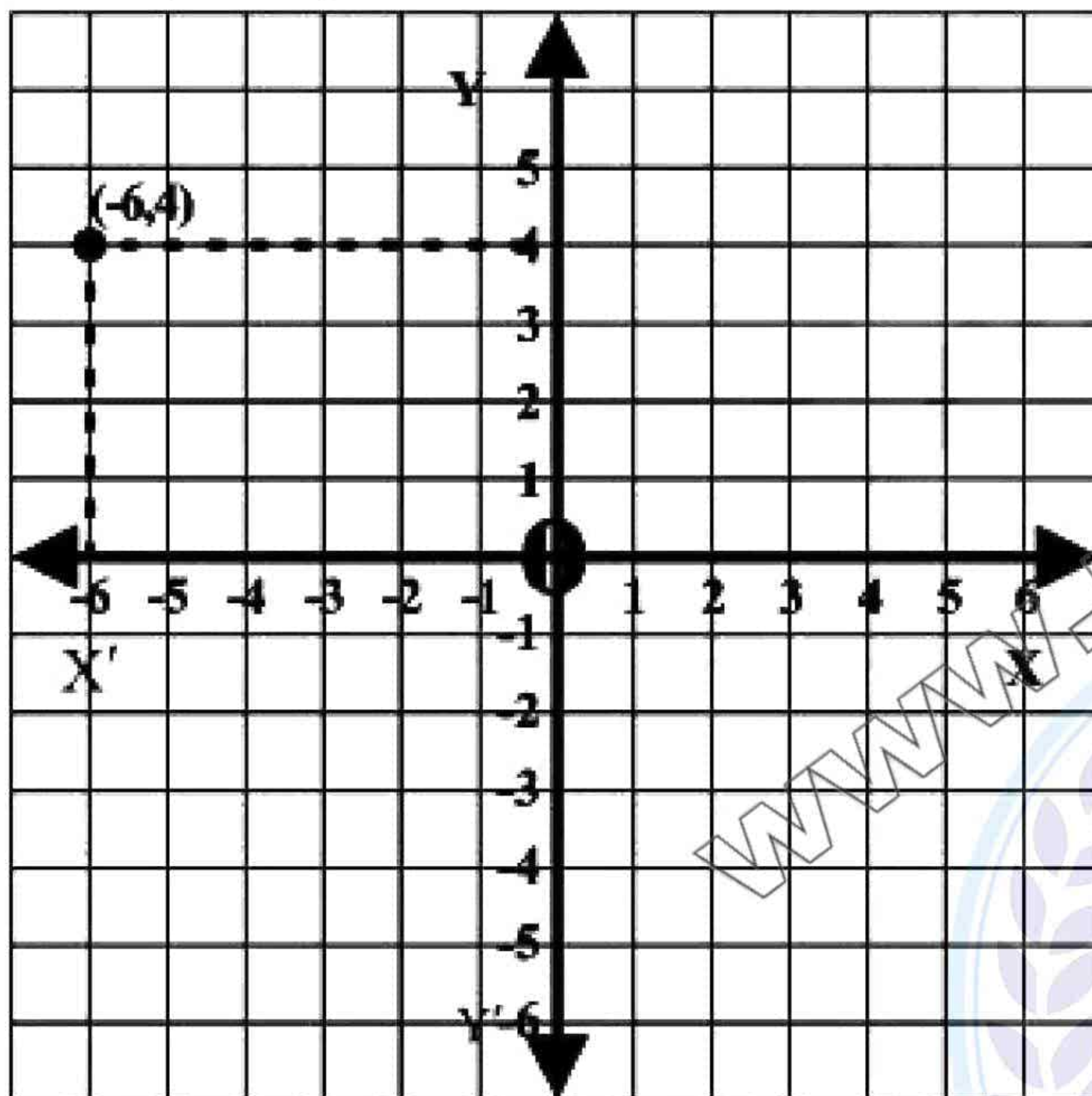
- | | | |
|-----|--|-------|
| 1. | The point O(0,0) is in quadrant II | False |
| 2. | The point p (2,0) lies on x-axis | True |
| 3. | The graph of $x=-2$ is a vertical line | True |
| 4. | $3-y=0$ is a horizontal line | True |
| 5. | The point Q (-1,2) is in quadrant II | True |
| 6. | The point R (-1,-2) is in quadrant IV | False |
| 7. | $y = x$ is a line on which origin lies | True |
| 8. | The point p (1,1) lies on the line $x + y = 0$ | False |
| 9. | The point S (1,-3) lies in quadrant III | False |
| 10. | The point R (0,1) lies on the x-axis | False |

Q.3 Draw the following points on the graph paper

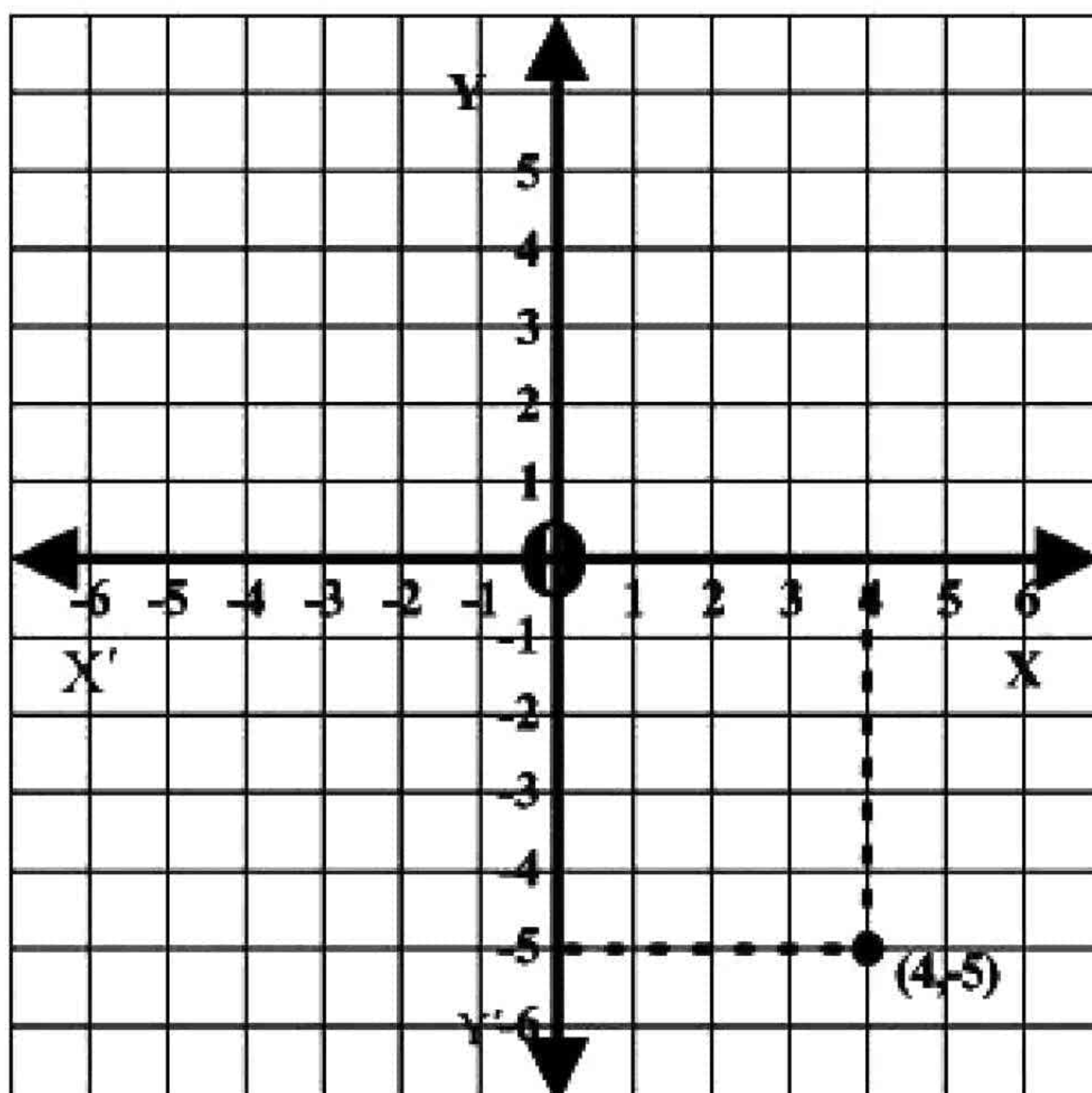
(i) $(-3, -3) \Rightarrow$



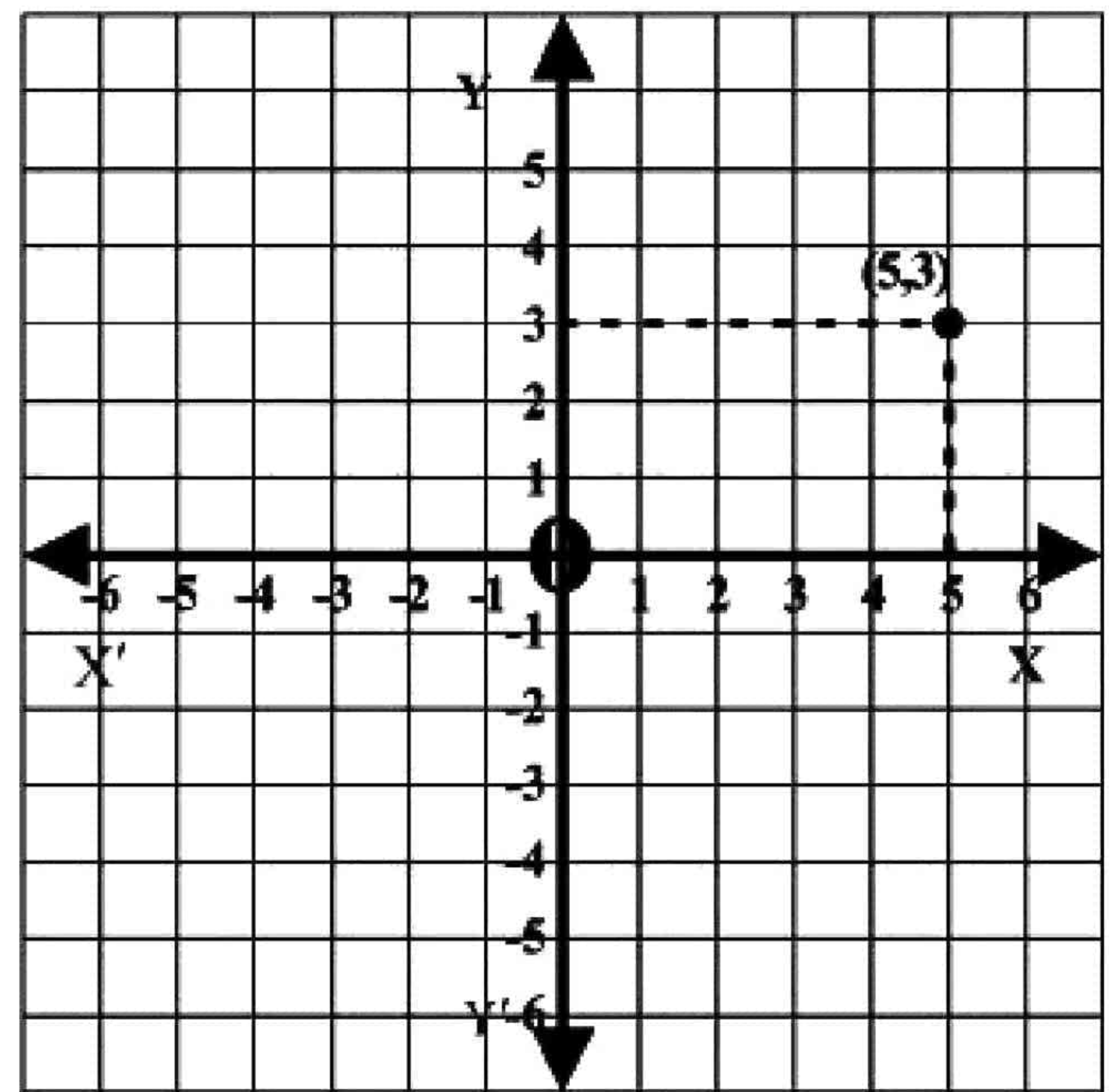
(ii) $(-6, 4) \Rightarrow$



(iii) $(4, -5) \Rightarrow$



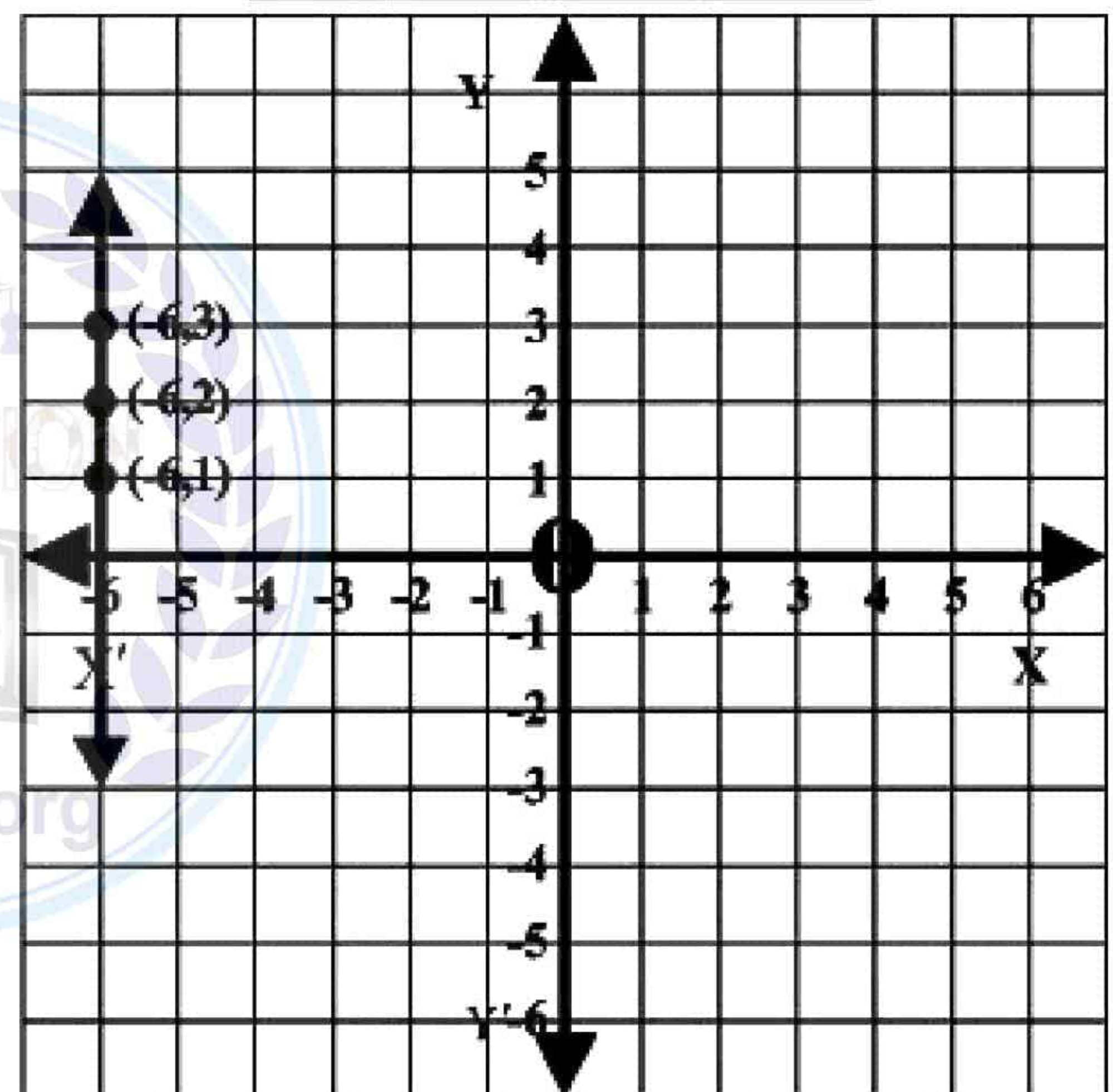
(iv) $(5, 3)$



Q.4 Draw the graph of the following

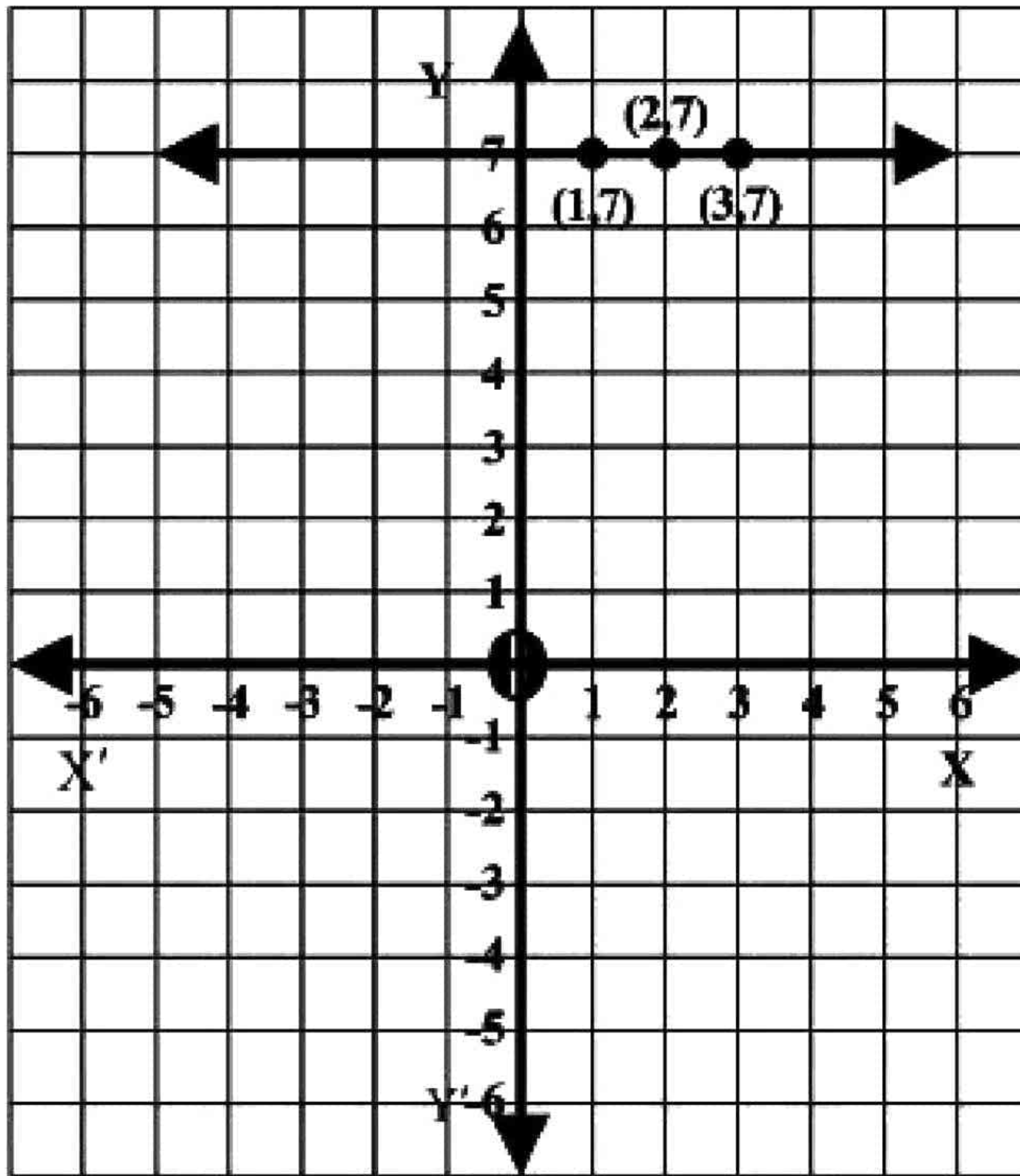
(i) $x = -6$

x	-6	-6	-6
y	1	2	3



(ii) $y = 7$

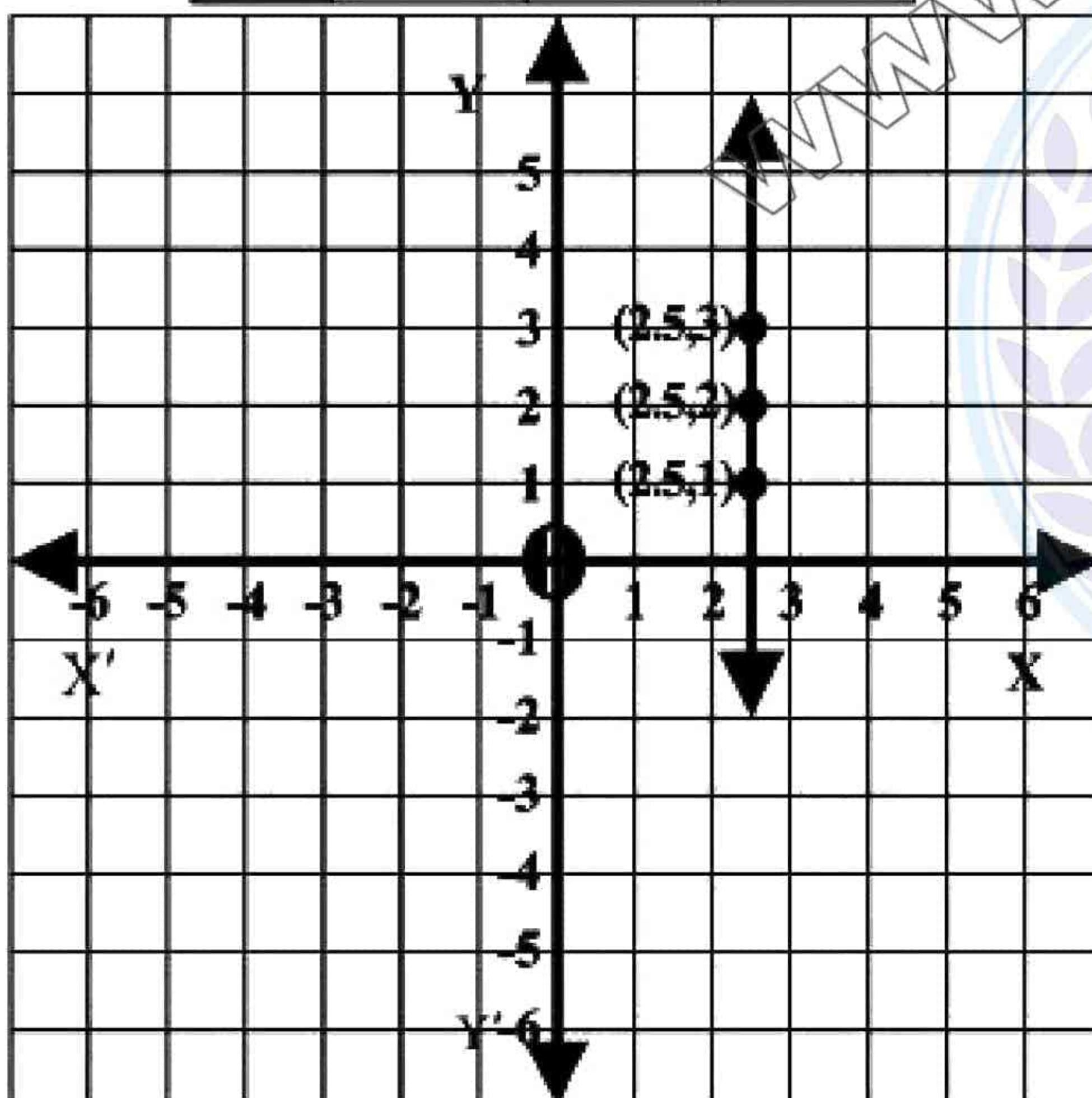
x	1	2	3
y	7	7	7



(iii) $x = \frac{5}{2}$

$x = 2.5$

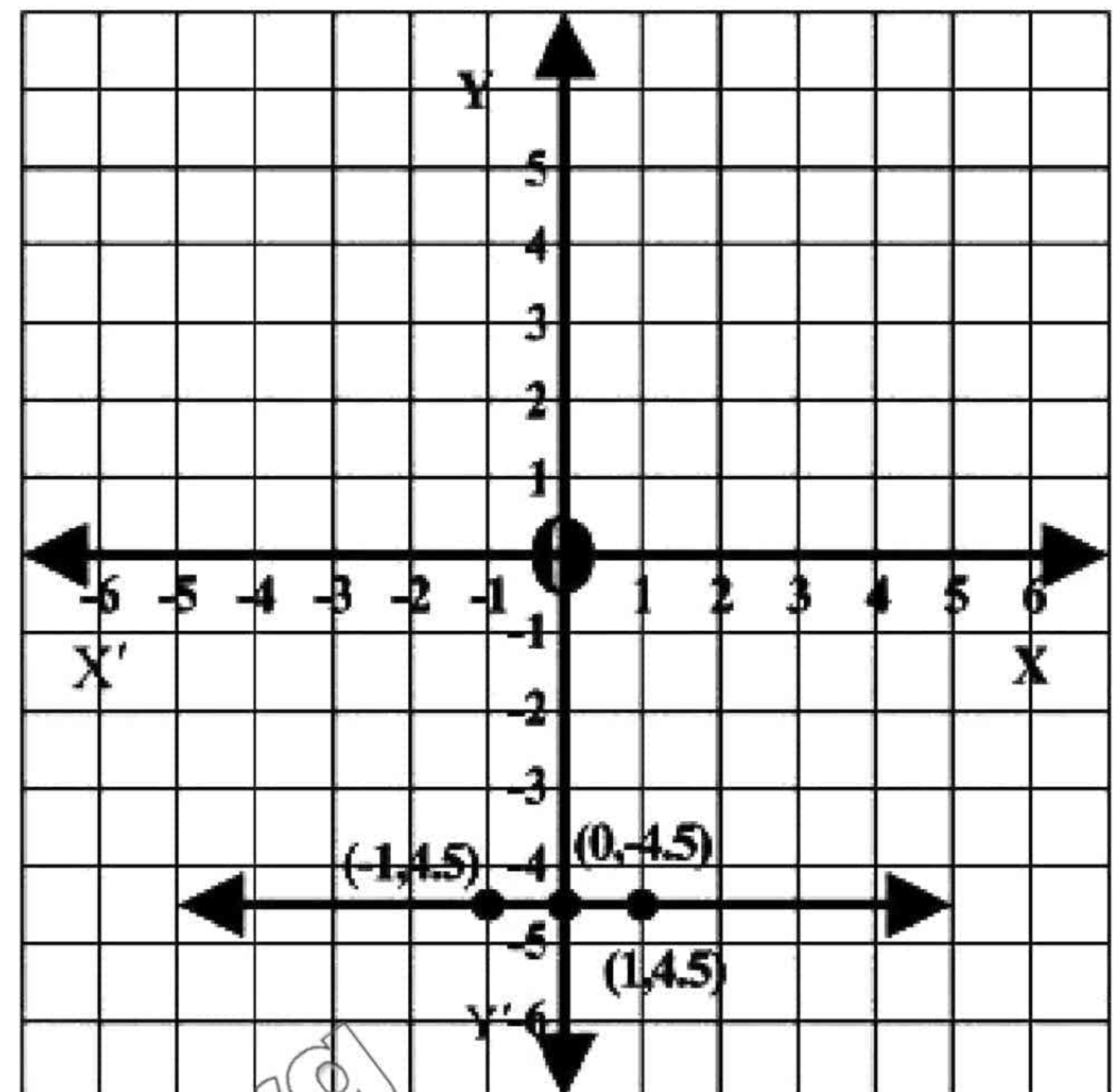
x	2.5	2.5	2.5
y	1	2	3



(iv) $y = -\frac{9}{2}$

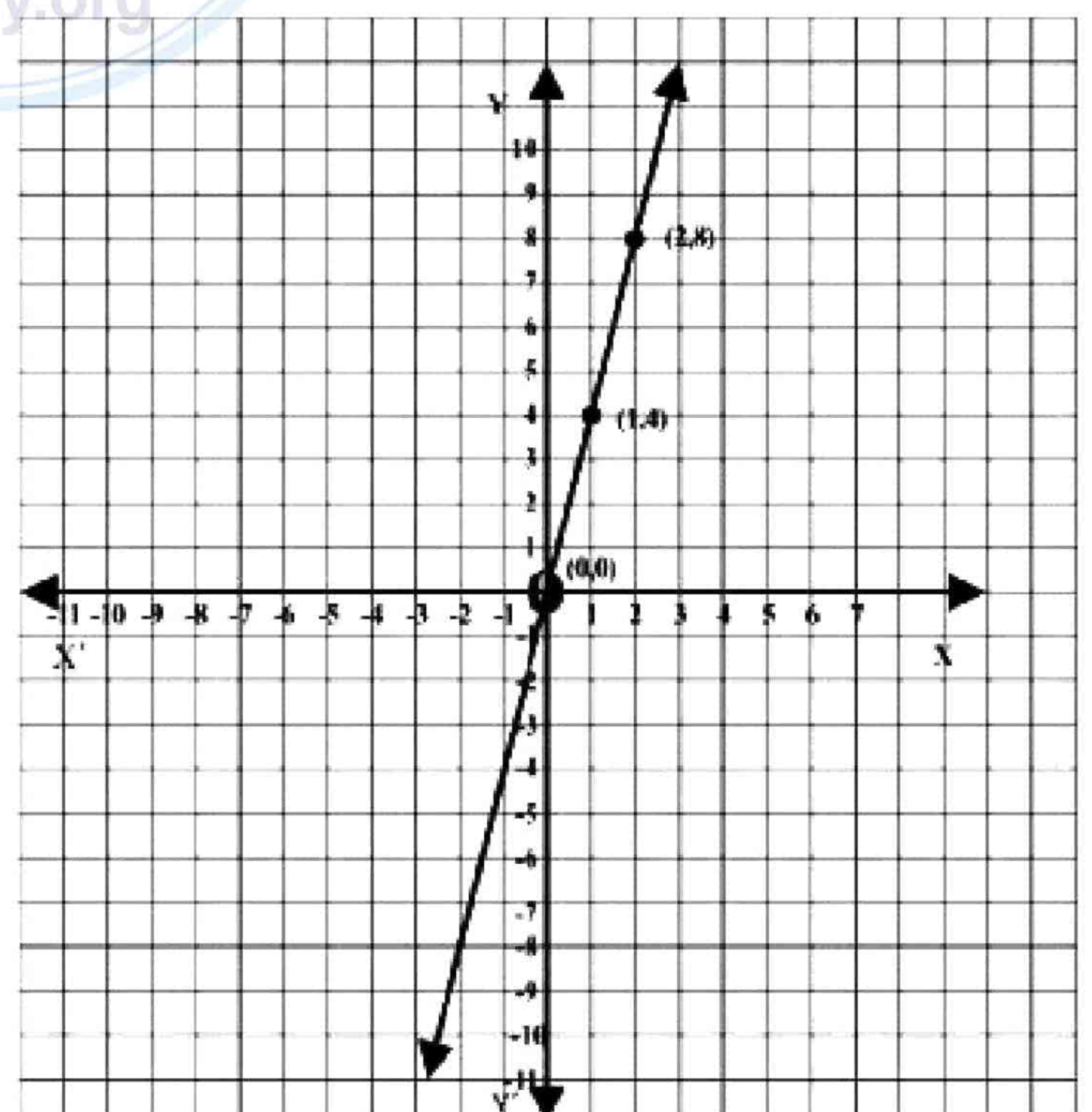
$y = -4.5$

x	-1	0	1
y	-4.5	-4.5	-4.5



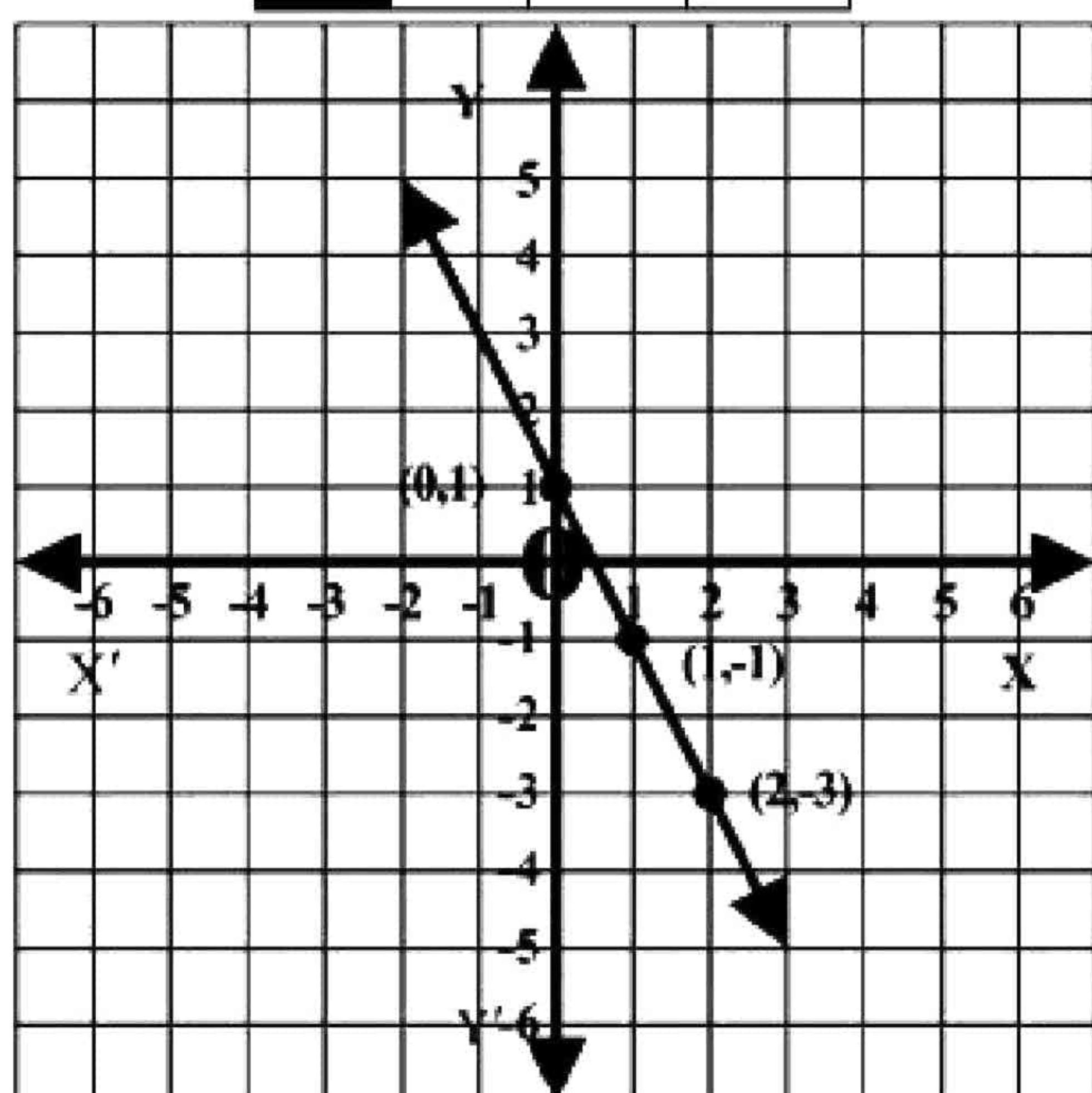
(v) $y = 4x$

x	0	1	2
$y = 4x$	$4 \times 0 = 0$	$4 \times 1 = 4$	$4 \times 2 = 8$



(vi) $y = -2x + 1$

x	0	1	2
y	1	-1	-3



(ii) $y = 2.5x$

x	$y = 2.5x$
1	$2.5(1) = 2.5$
2	$2.5(2) = 5.0$
3	$2.5(3) = 7.5$

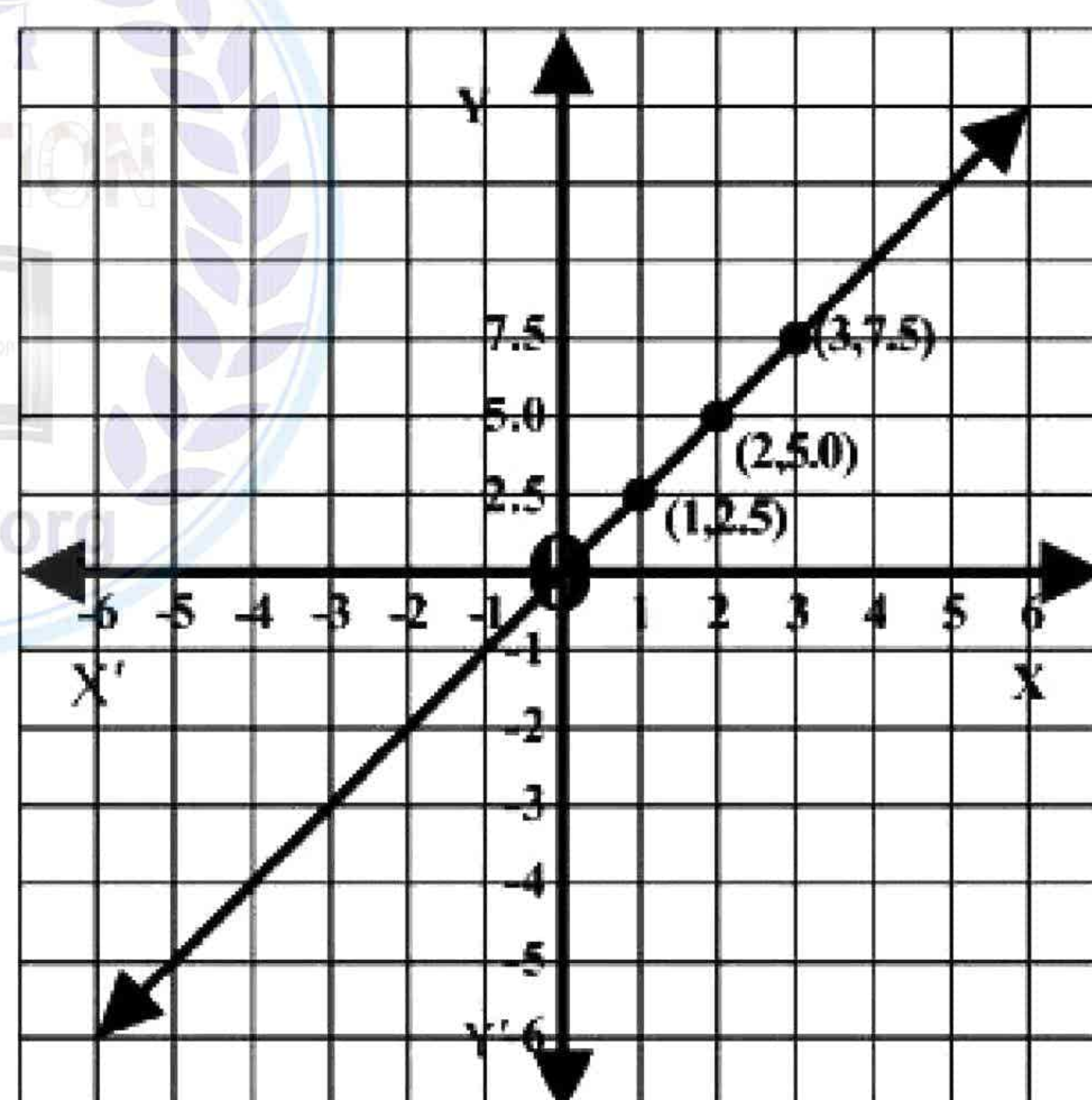
Scale

Along x -axis

1 Big Square = 1 Unit

Along y -axis

1 Big Square = 2.5 Units

**Q.5 Draw the following graph**

(i) $y = 0.62x$

x	$y = 0.62x$
1	$0.62 \times 1 = 0.62$
2	$0.62 \times 2 = 1.24$
3	$0.62 \times 3 = 1.86$

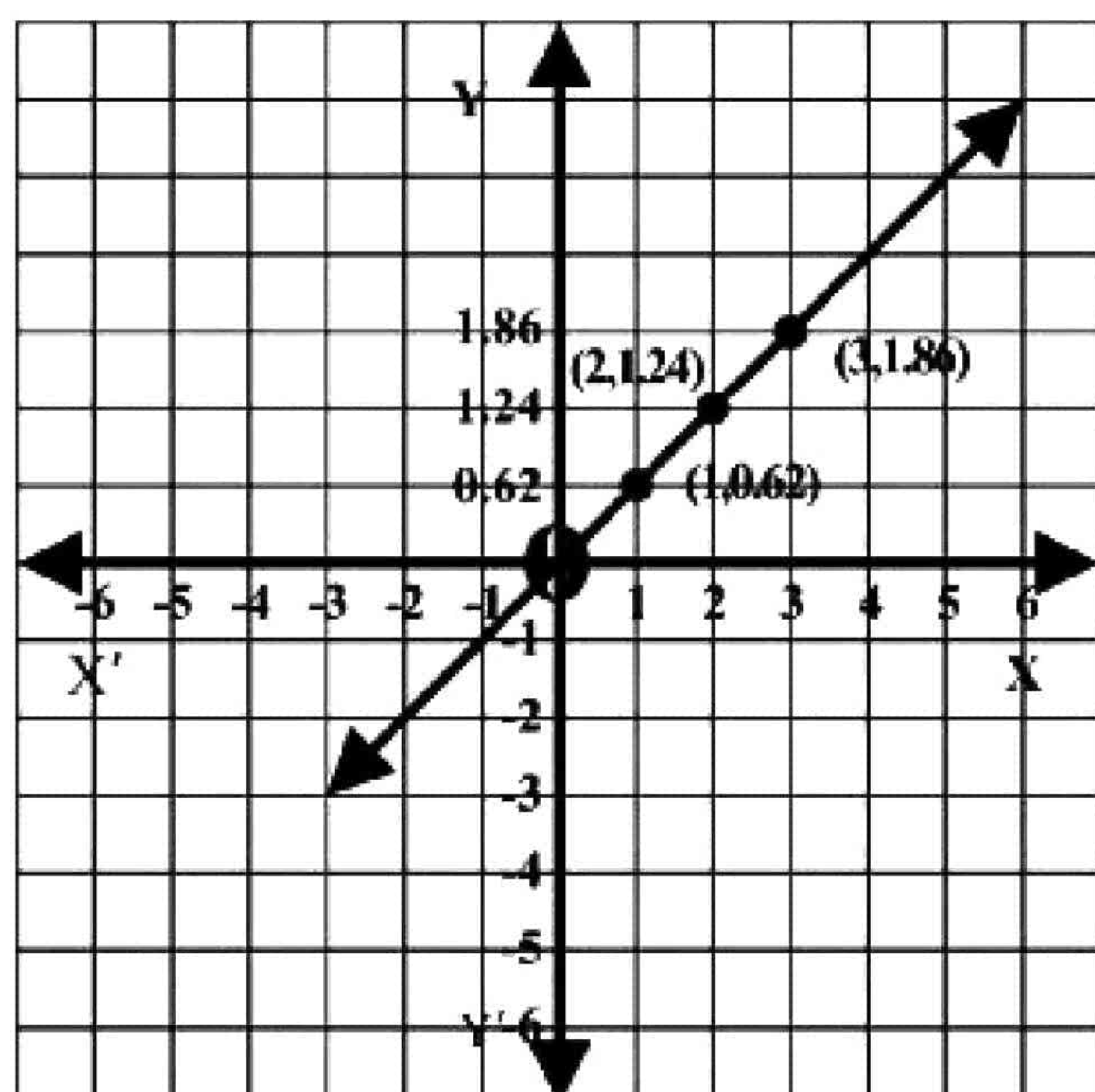
Scale

Along x -axis

1 Big Square = 1 Unit

Along y -axis

1 Big Square = 0.62 Units



Q.6

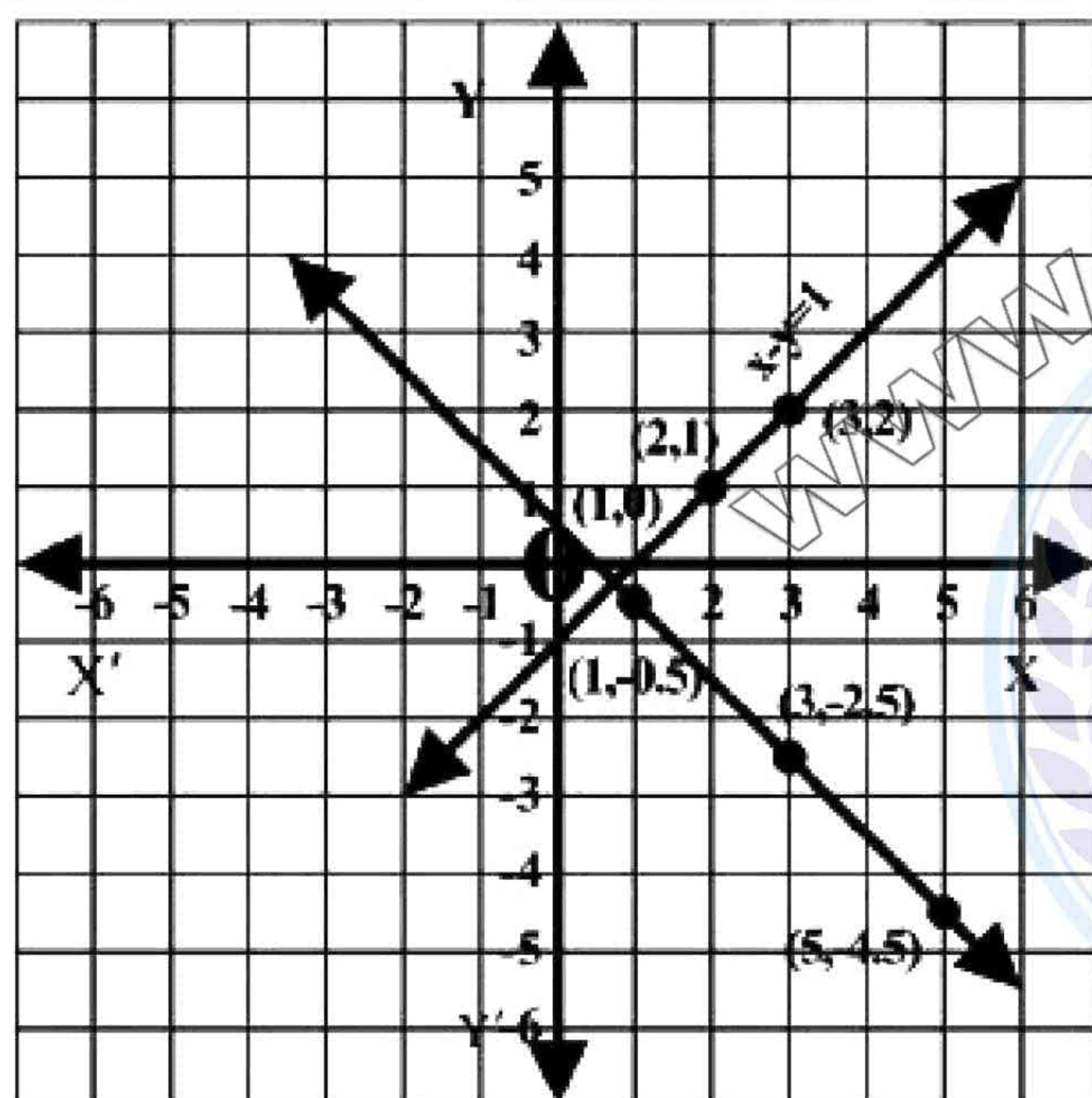
(i) $x - y = 1$ $x + y = \frac{1}{2}$

$x - 1 = y$ $y = \frac{1}{2} - x$

or $y = x - 1$ $y = \frac{1 - 2x}{2}$

x	$y = x - 1$
1	$1 - 1 = 0$
2	$2 - 1 = 1$
3	$3 - 1 = 2$

x	$y = \frac{1 - x}{2}$
1	$\frac{1 - 2}{2} = -\frac{1}{2}$
3	$\frac{1 - 6}{2} = -\frac{5}{2}$
5	$\frac{1 - 10}{2} = -\frac{9}{2}$



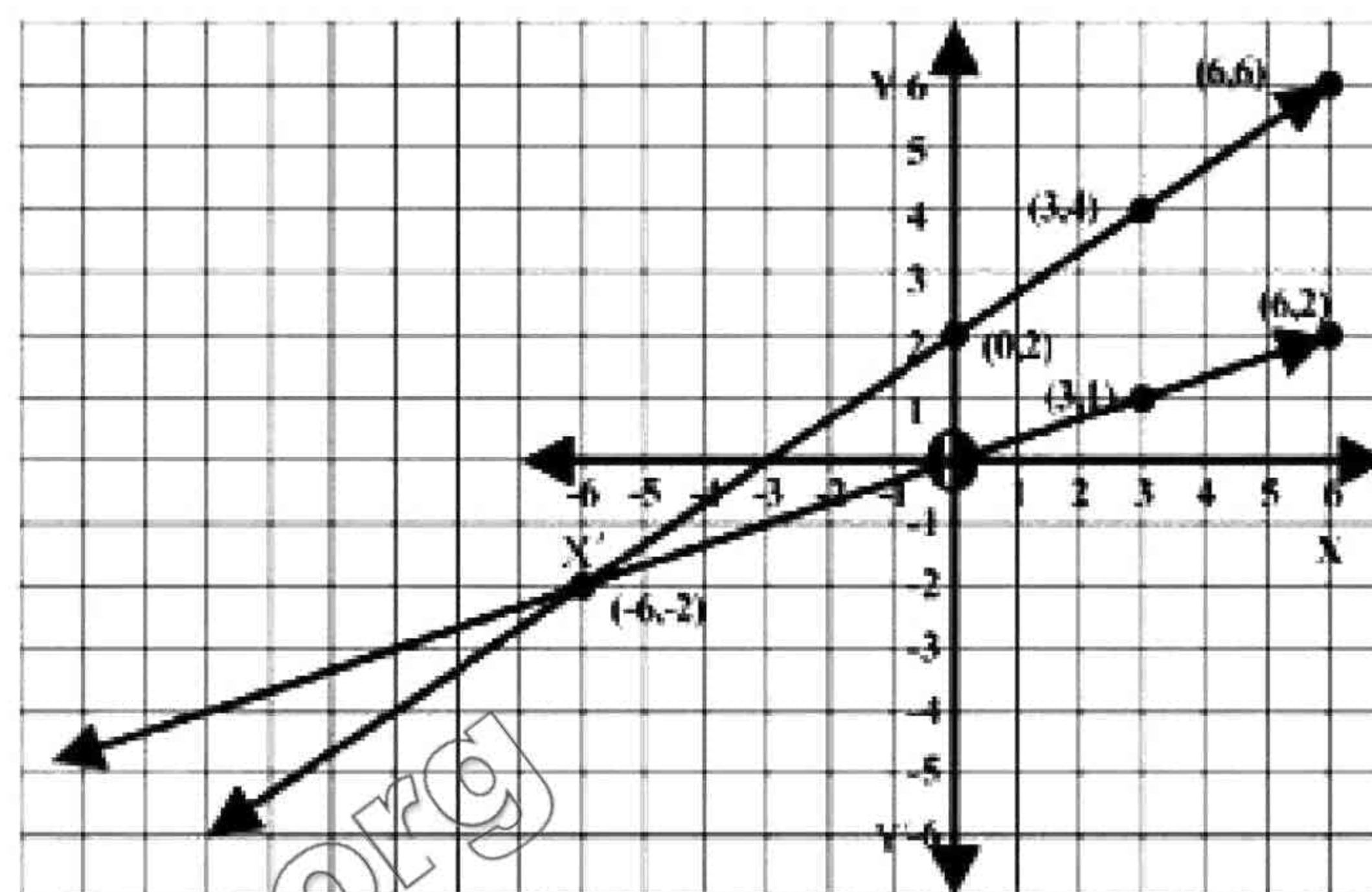
Point of intersection is a solution set

$$\text{Solution Set} = \left\{ \left(\frac{3}{4}, -\frac{1}{4} \right) \right\}$$

(ii) $x = 3y$

$$y = \frac{1}{3}x$$

x	$y = \frac{1}{3}x$
3	$\frac{1}{3} \times 3 = 1$
6	$\frac{1}{3} \times 6 = 2$



$$2x - 3y = -6$$

$$2x + 6 = 3y$$

$$\frac{2x + 6}{3} = y$$

$$y = \frac{2x + 6}{3}$$

Point of intersection is a solution set

$$\text{Solution Set} = \{(-6, -2)\}$$

x	$y = \frac{2x + 6}{3}$
0	$\frac{2(0) + 6}{3} = \frac{6}{3} = 2$
3	$\frac{2(3) + 6}{3} = \frac{12}{3} = 4$
6	$\frac{2(6) + 6}{3} = \frac{18}{3} = 6$

(iii) $\frac{1}{3}(x+y)=2$ $\frac{1}{2}(x-y)=-1$

$x+y=6$ $x-y=-2$

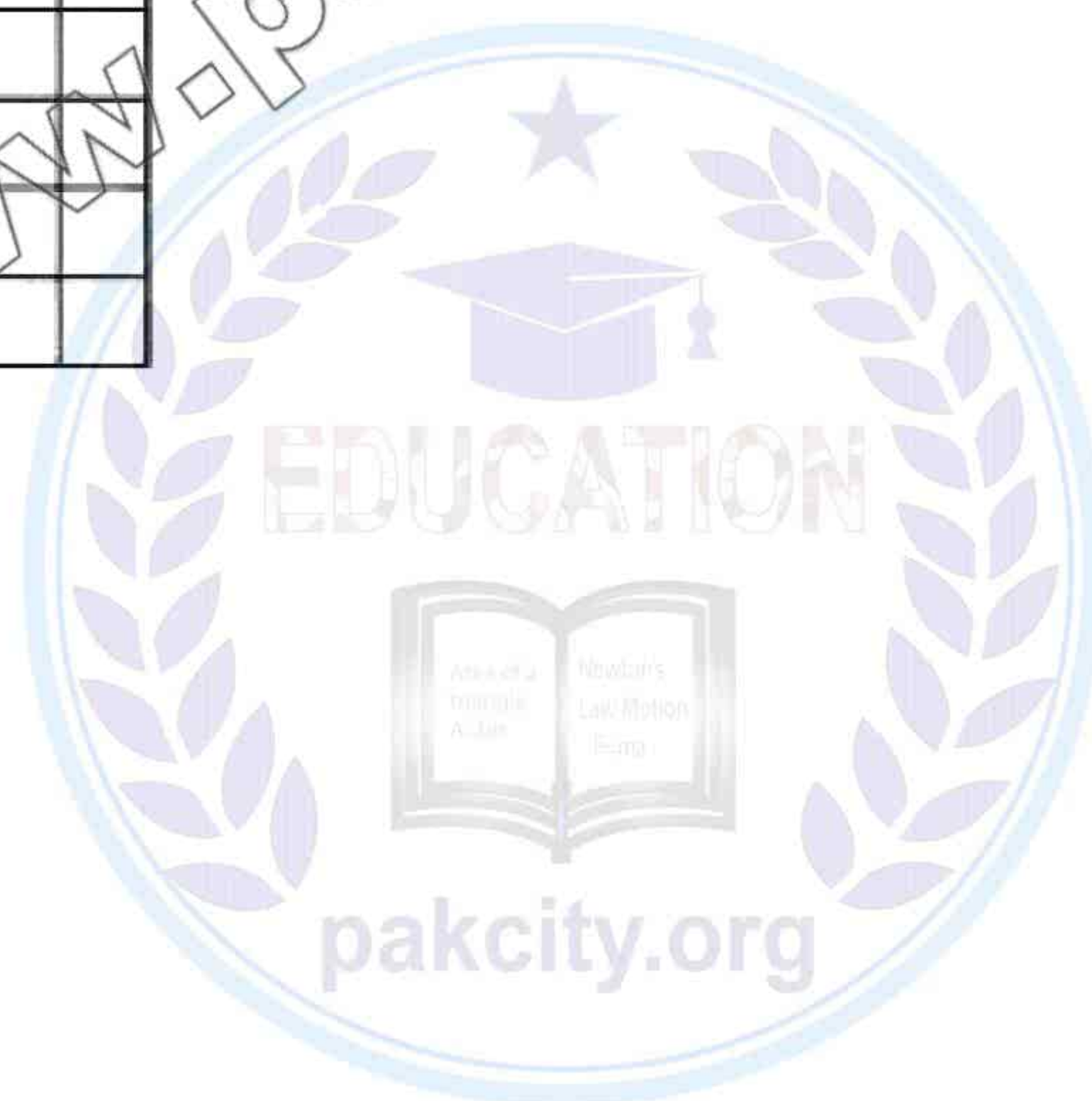
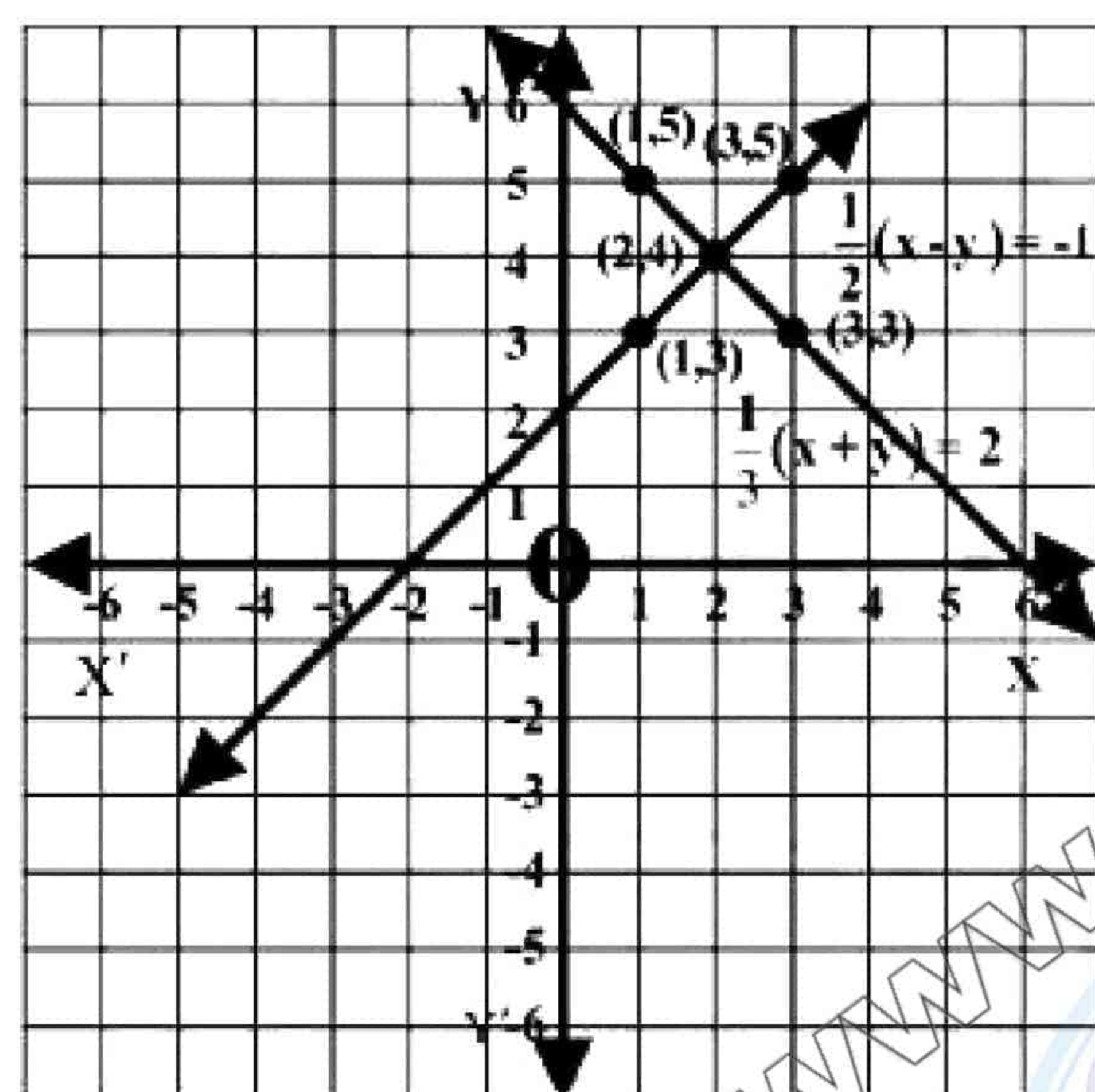
$y=6-x$ $x+2=y$

x	$y=6-x$
1	$6-1=5$
2	$6-2=4$
3	$6-3=3$

x	$y=x+2$
1	$1+2=3$
2	$2+2=4$
3	$3+2=5$

Point of intersection is a solution set

Solution Set = $\{(2, 4)\}$



Unit 8: Linear Graph & Their Application

Overview

Ordered pair:

An ordered pair of real numbers x and y is a pair (x, y) in which elements are written in specific order.

For example $(2, 3), (-1, -3)$

Cartesian Plane:

In plane two mutually perpendicular straight lines are drawn. The lines are called the coordinate axes. The point O , where the two lines meet is called origin. This plane is called the coordinate plane or the Cartesian plane.

Abscissa:

First value of the order pair (x, y) is called abscissa.

Ordinate:

Second value of the order pair (x, y) is called ordinate.

For Example $(5, -3)$

5 is abscissa and -3 is an ordinate

