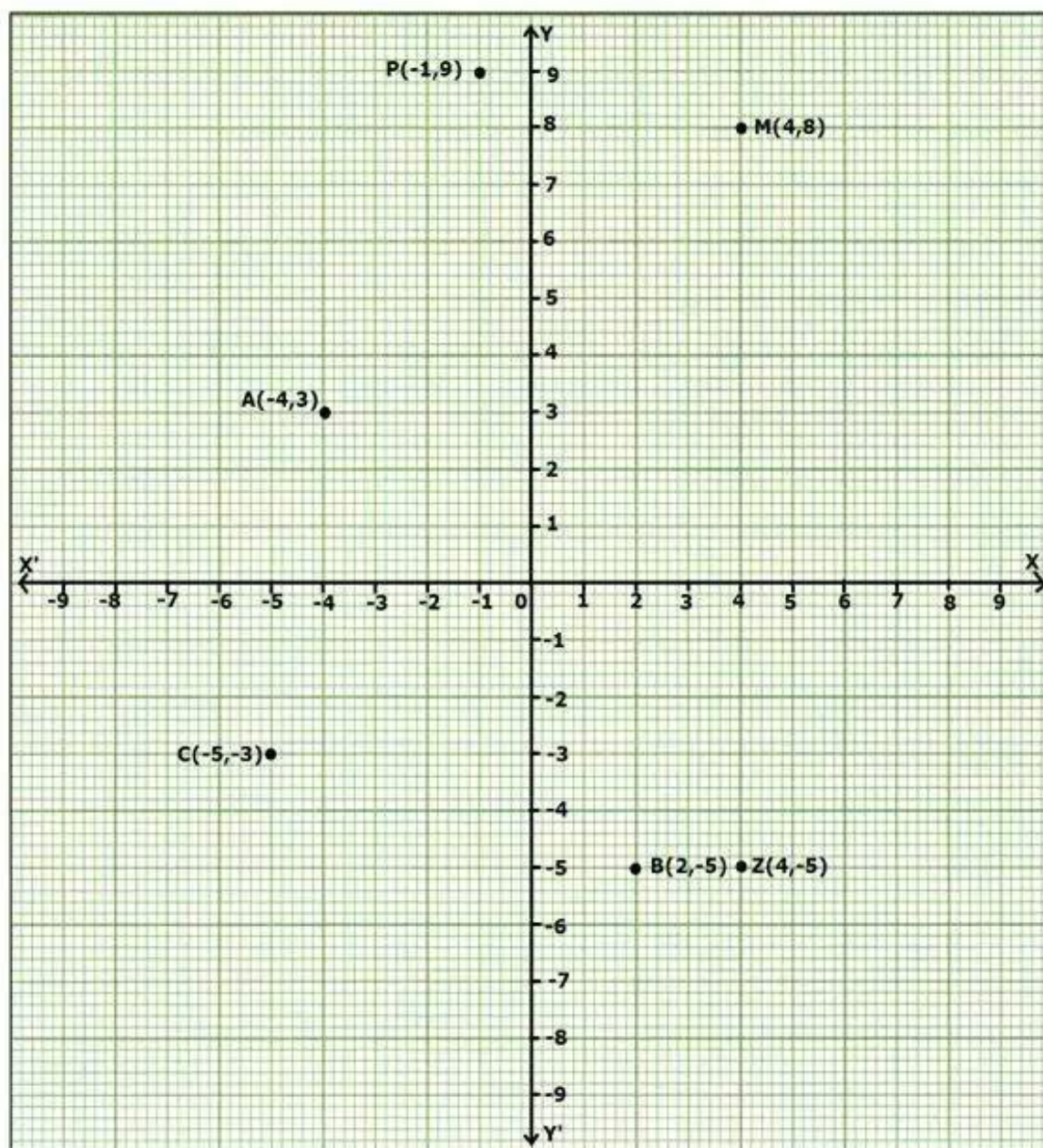


Chapter 28. Coordinate Geometry

Ex 28.1

Answer 2.



The following points lie in:

$A(-4,3)$: II quadrant

$B(2,-5)$: IV quadrant

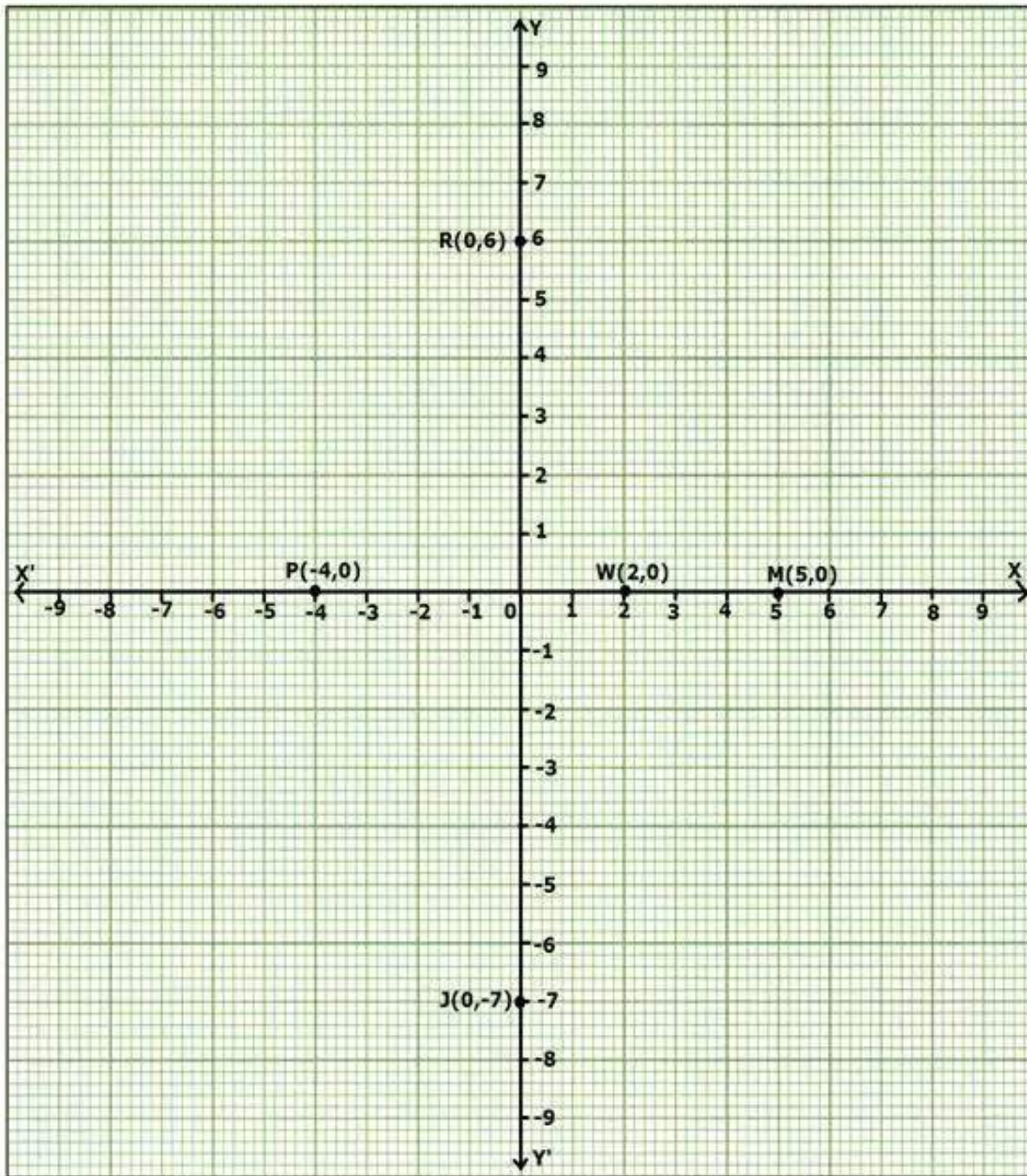
$C(-5,-3)$: III quadrant

$M(4,8)$: I quadrant

$P(-1,9)$: II quadrant

$Z(4,-5)$: IV quadrant

Answer 33.



The following points lie on:

$J(0,-7)$: y-axis

$M(5,0)$: x-axis

$P(-4,0)$: x-axis

$R(0,6)$: y-axis

$W(2,0)$: x-axis

Answer 4.

(i) Abscissa is 6 and ordinate is 2

The co-ordinates of point whose abscissa is 6 and ordinate is 2 is (6,2)

(ii) Abscissa is 0 and ordinate is -3

The co-ordinates of point whose abscissa is 0 and ordinate is -3 is (0,-3)

(iii) Abscissa is 5 and ordinate is -1

The co-ordinates of point whose abscissa is 5 and ordinate is -1 is (5,-1)

(iv) Abscissa is -2 and ordinate is 0

The co-ordinates of point whose abscissa is -2 and ordinate is 0 is (-2,0)

(v) Abscissa is -4 and ordinate is -7

The co-ordinates of point whose abscissa is -4 and ordinate is -7 is (-4,-7)

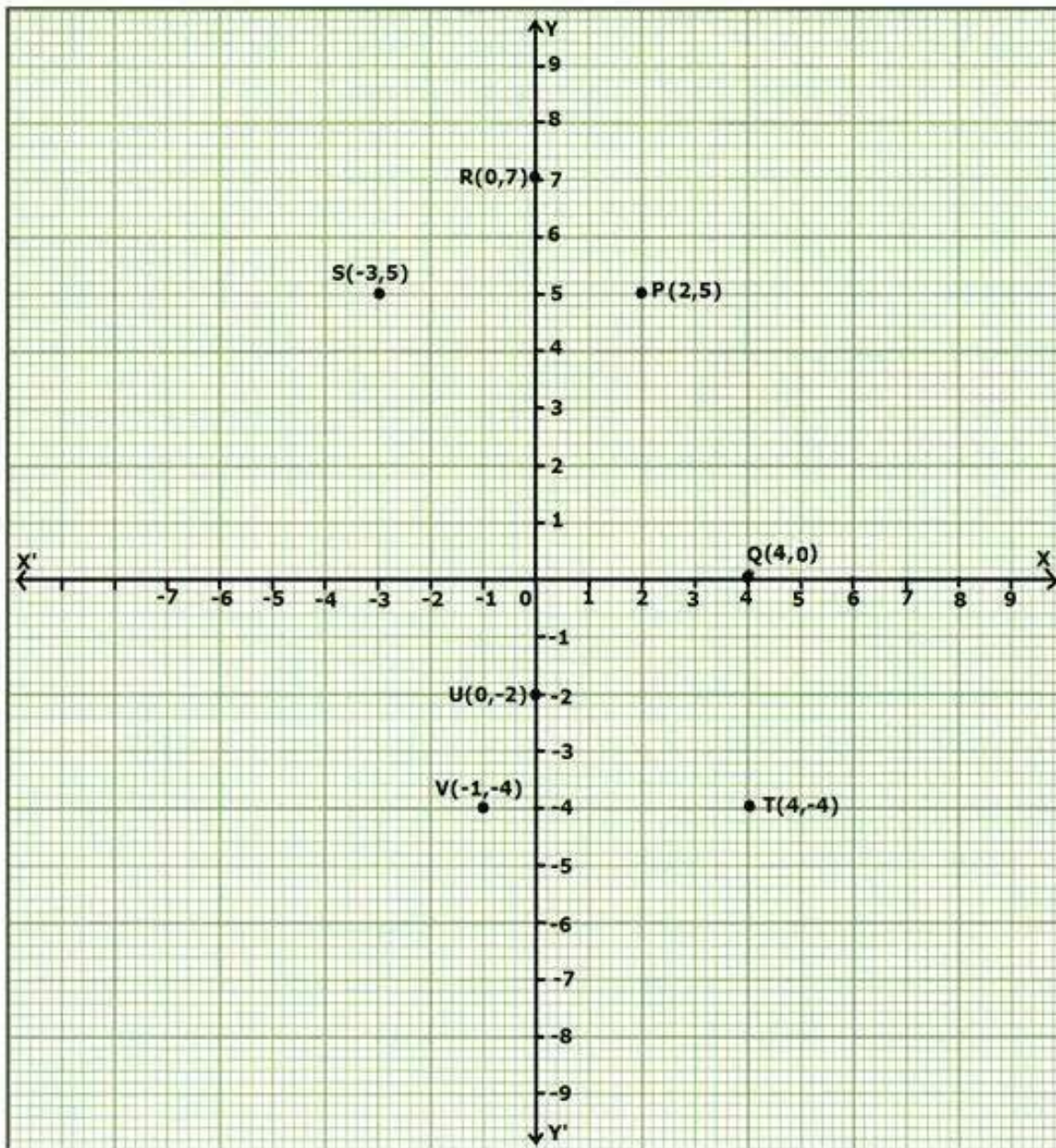
(vi) Abscissa is 0 and ordinate is 0

The co-ordinates of point whose abscissa is 0 and ordinate is 0 is (0, 0)

(vii) Abscissa is -7 and ordinate is 4

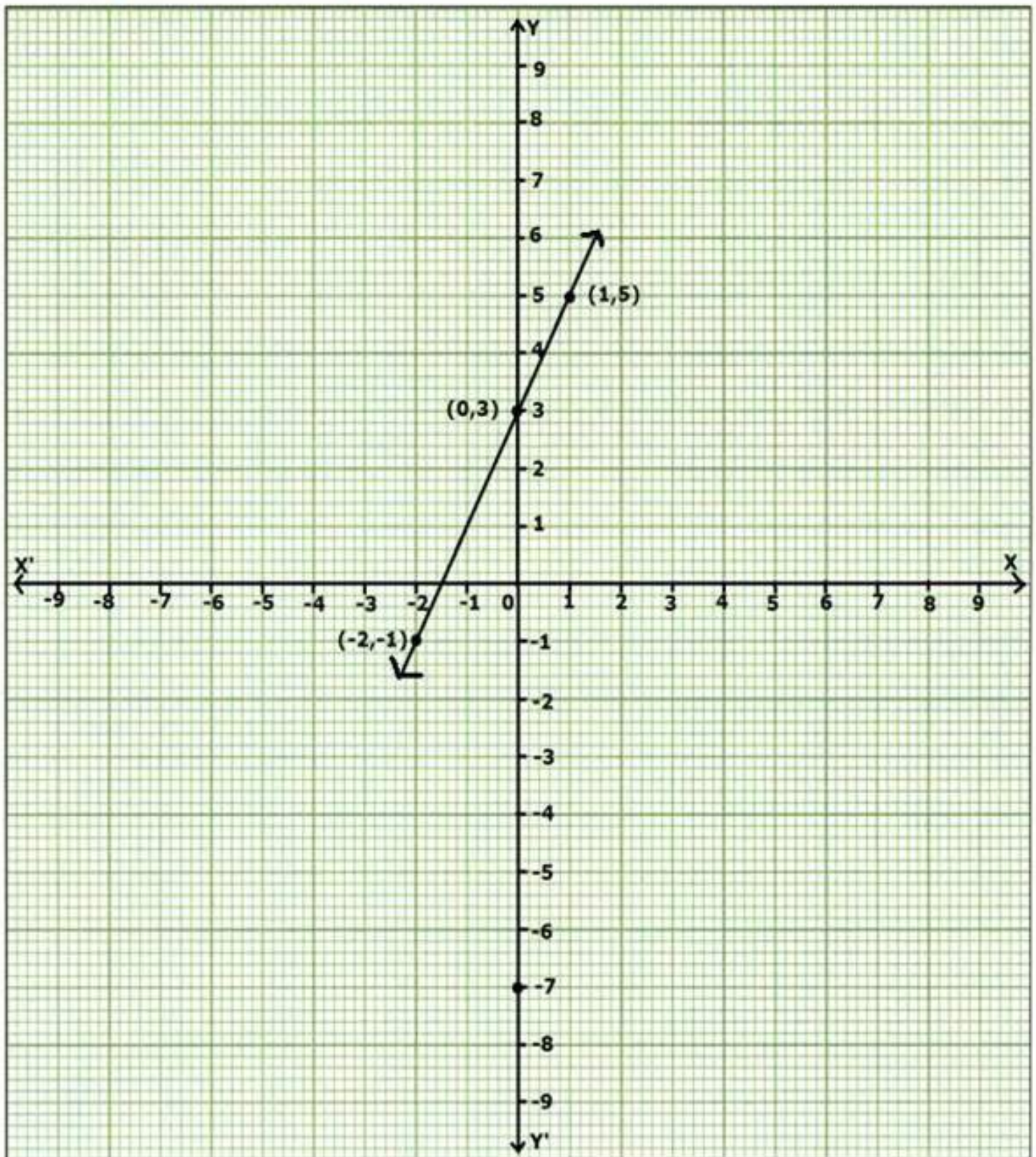
The co-ordinates of point whose abscissa is -7 and ordinate is 4 is (-7, 4)

Answer 5.



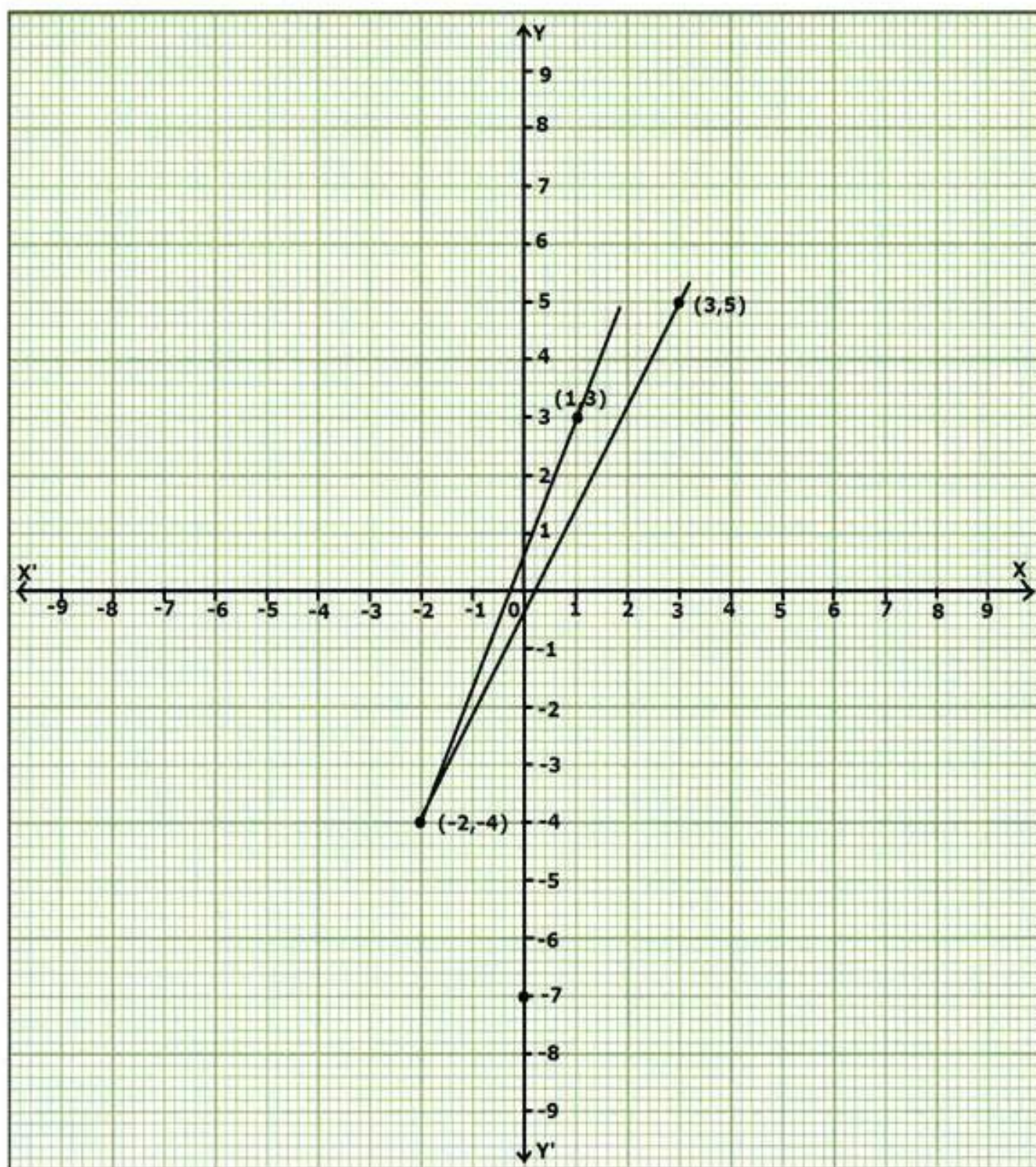
Answer 9.

(i) $(-2,-1)$, $(0,3)$ and $(1,5)$



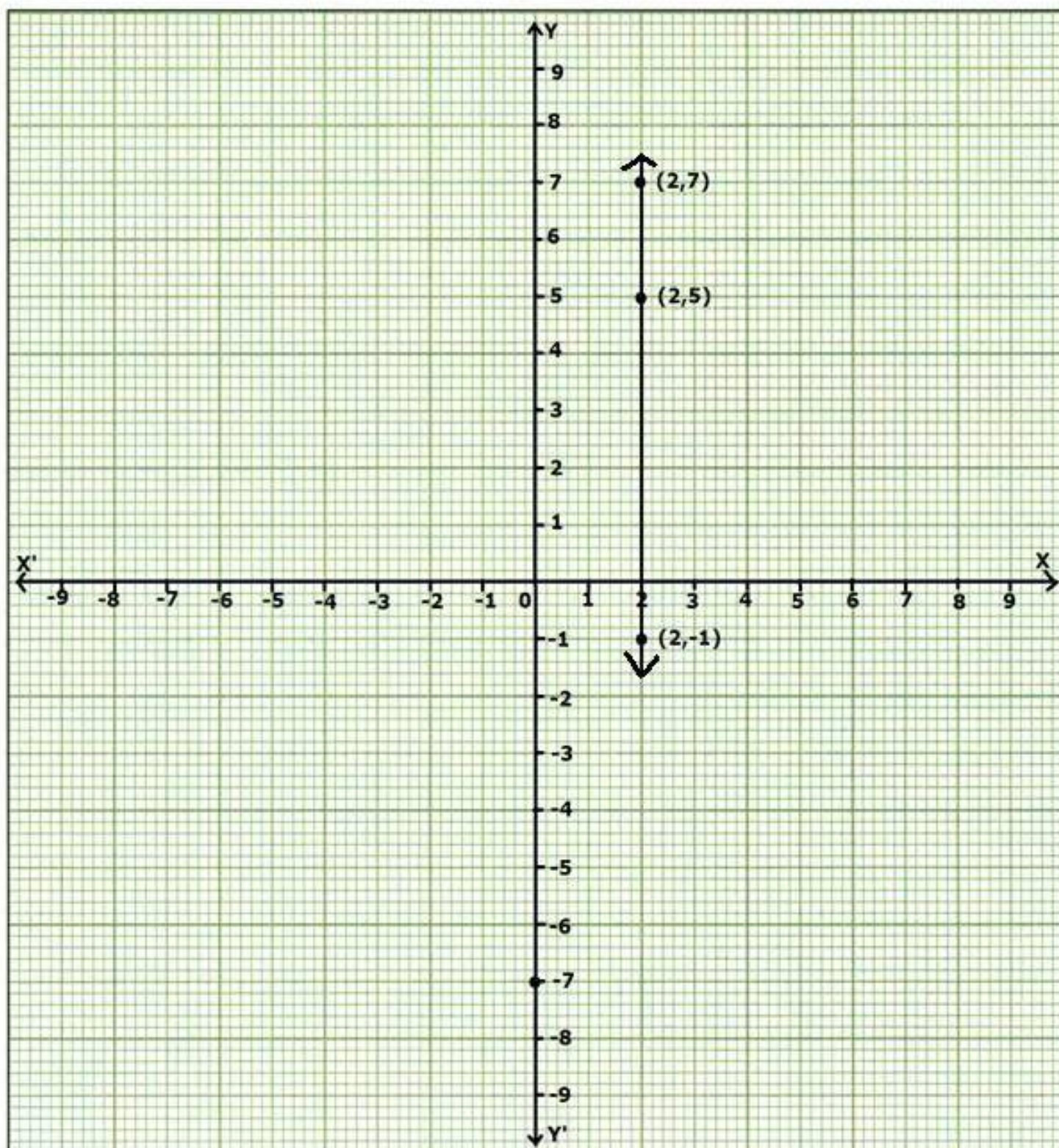
$(-2,-1)$, $(0,3)$ and $(1,5)$ are collinear points.

(ii) $(1,3)$, $(-2,-4)$ and $(3,5)$



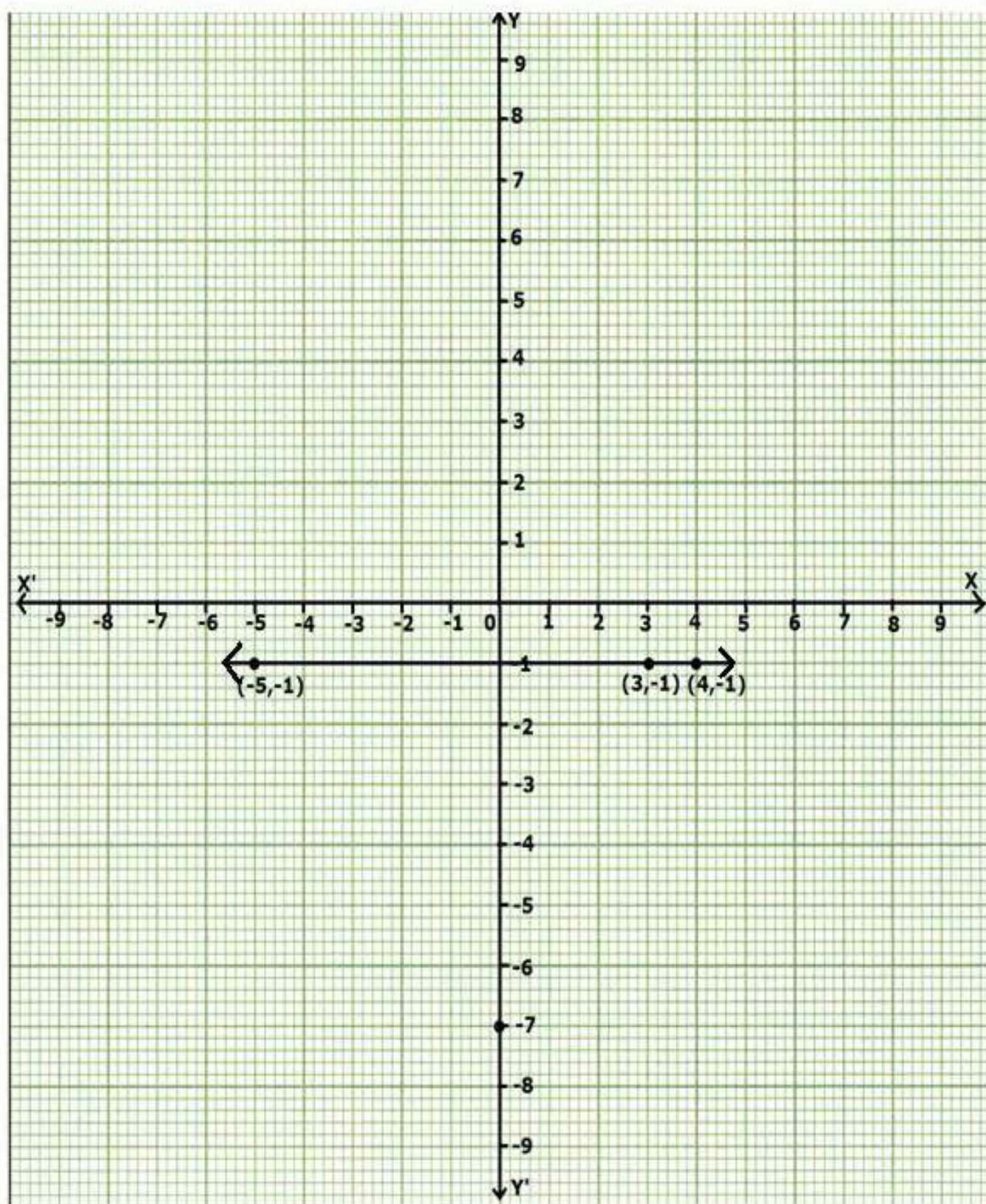
$(1,3)$, $(-2,-4)$ and $(3,5)$ are not collinear points.

(iii) $(2,-1)$, $(2,5)$ and $(2,7)$



$(2,-1)$, $(2,5)$ and $(2,7)$ are collinear points.

(iv) $(4,-1)$, $(-5,-1)$ and $(3,-1)$



$(4,-1)$, $(-5,-1)$ and $(3,-1)$ are collinear points.

Ex 28.2

Answer 4.

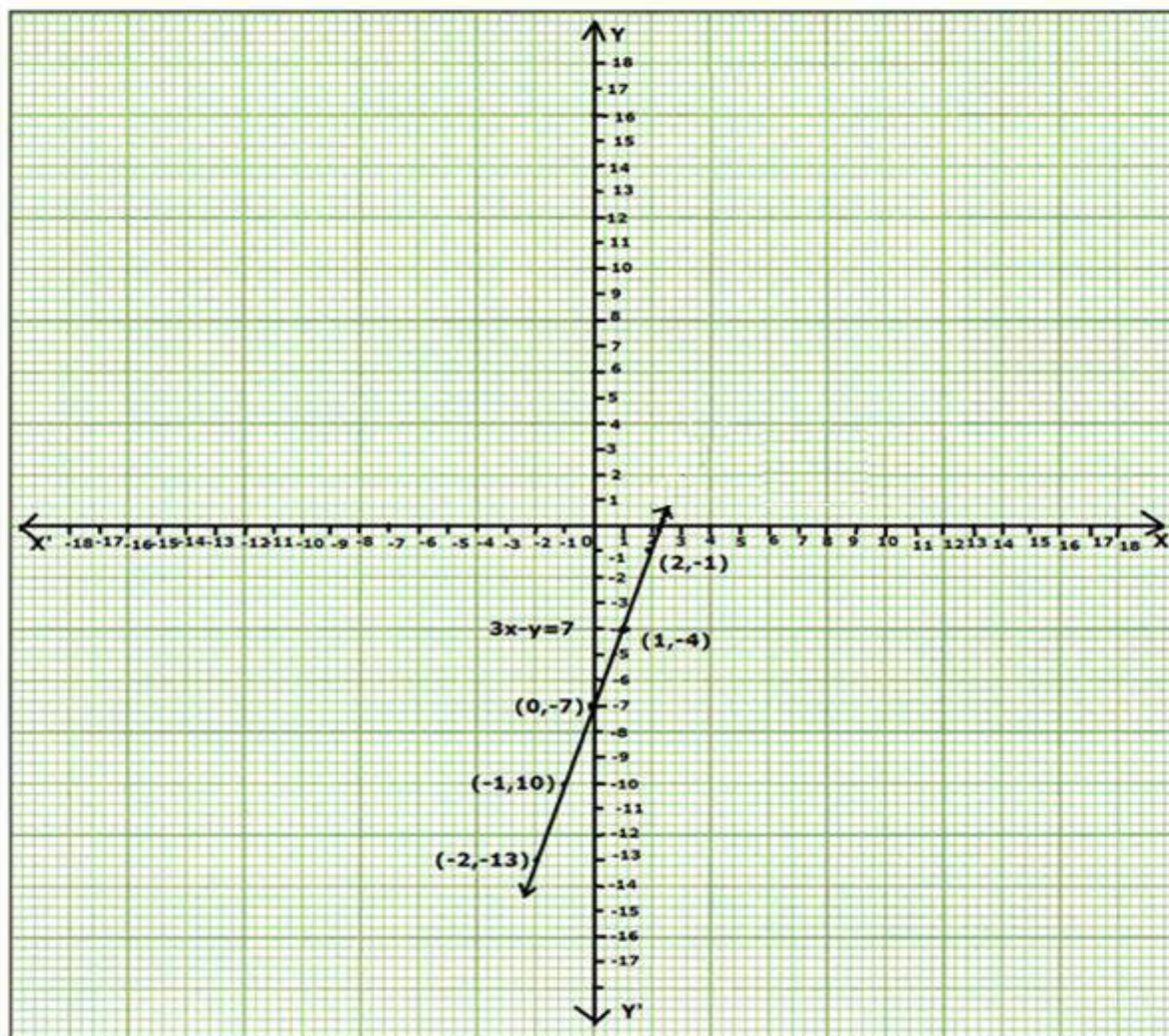
We have $3x - y = 7 \Rightarrow -y = 7 - 3x \Rightarrow y = 3x - 7$

When $x = -2 \Rightarrow y = -6 - 7 = -13$

When $x = 0 \Rightarrow y = -7$

When $x = 2 \Rightarrow y = 6 - 7 = -1$

x	-2	-1	0	1	2
y	-13	-10	-7	-4	-1



Thus ordered pairs of $3x - y = 7$ are $\{(-2, -13), (-1, -10), (0, -7), (1, -4), (2, -1)\}$.
Hence graph is as below.

(i) y , when $x = 1$

From graph we find that $y = -4$, when $x = 1$

(ii) x , when $y = 8$

From graph we find that $x = 5$, when $y = 8$

Answer 5.

$$\text{We have } 2x - 3y = 15 \Rightarrow -3y = 15 - 2x \Rightarrow 3y = 2x - 15 \Rightarrow y = \frac{2x - 15}{3}$$

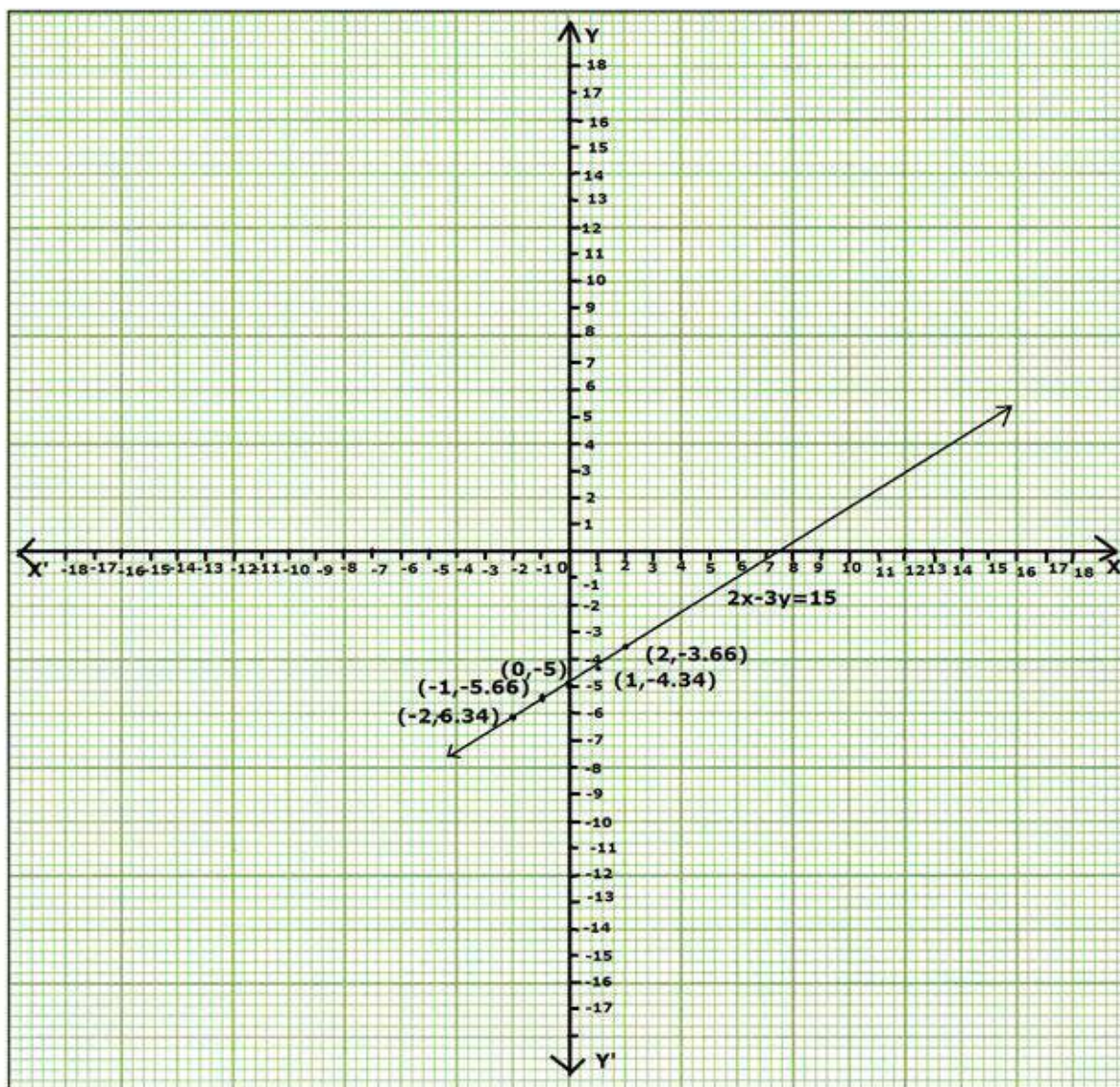
$$\text{When } x = -2 \Rightarrow y = -\frac{19}{3} = -6.34$$

$$\text{When } x = 0 \Rightarrow y = -\frac{15}{3} = -5$$

$$\text{When } x = 2 \Rightarrow y = -\frac{11}{3} = -3.66$$

x	-2	-1	0	1	2
y	-6.34	-5.66	-5	-4.34	-3.66

Thus ordered pairs of $2x - 3y = 15$ are $\{(-2, -6.34), (-1, -5.66), (0, -5), (1, -4.34), (2, -3.66)\}$. Hence graph is as below.



(i) x, when $y = 3$

From graph we find that $x = 12$, when $y = 3$

(ii) y, when $x = 0$

From graph we find that $y = -5$, when $x = 0$

Answer 7.

$$\text{We have } 2x + 3y + 5 = 0 \Rightarrow 2x + 3y = -5 \Rightarrow 3y = -5 - 2x \Rightarrow y = \frac{-2x - 5}{3}$$

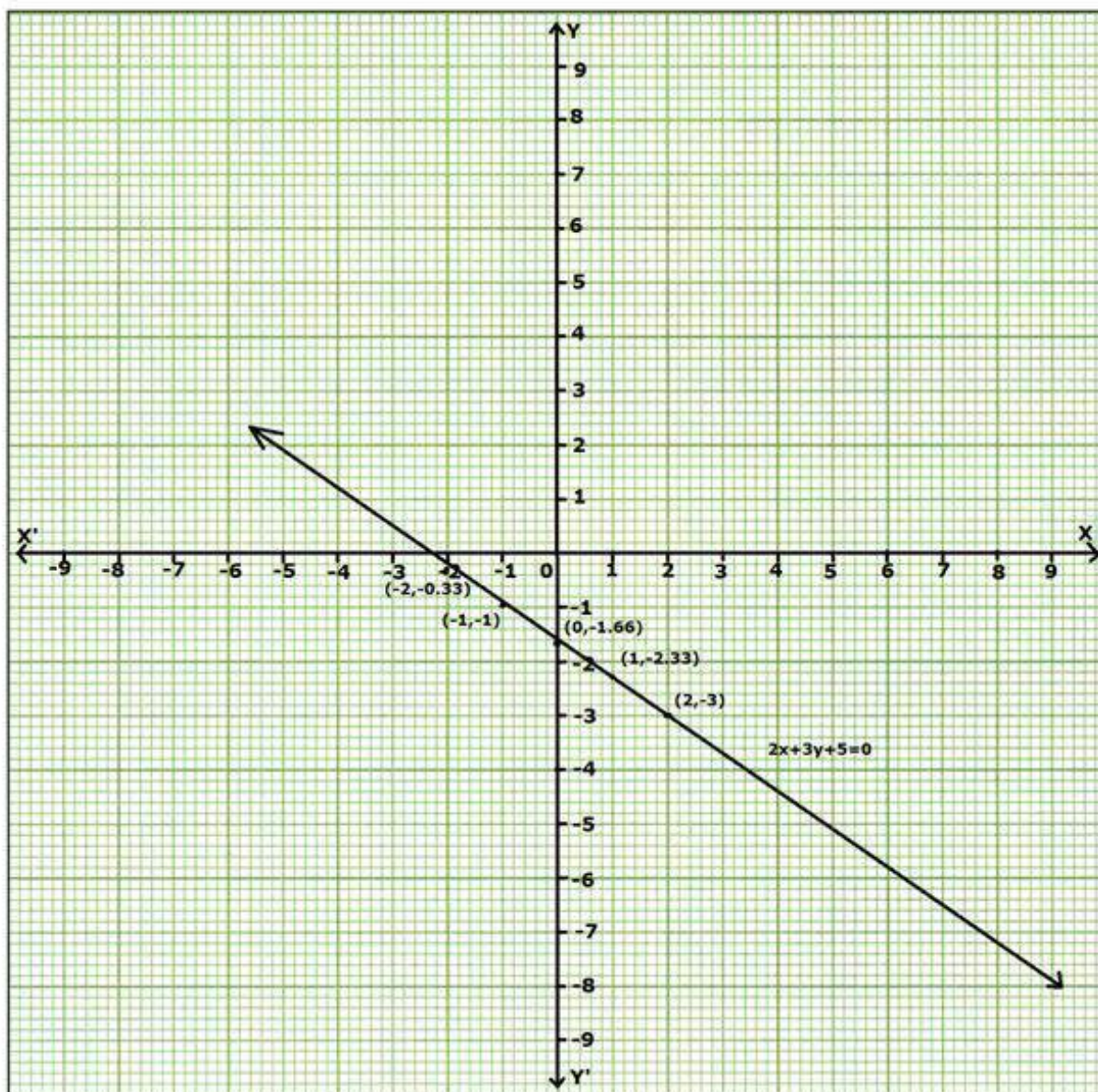
$$\text{When } x = -2 \Rightarrow y = -\frac{1}{3} = 0.33$$

$$\text{When } x = 0 \Rightarrow y = -\frac{5}{3} = -1.66$$

$$\text{When } x = 2 \Rightarrow y = -\frac{9}{3} = -3$$

x	-2	-1	0	1	2
y	-0.33	-1	-1.66	-2.33	-3

Thus ordered pairs of $2x + 3y + 5 = 0$ are $\{(-2, -0.33), (-1, -1), (0, -1.66), (1, -2.33), (2, -3)\}$. Hence graph is as below.



(i) x, when $y = -3$

From graph we find that $x = 2$, when $y = -3$

(ii) y, when $x = 8$

From graph we find that $y = -7$, when $x = 8$

We have $x + y = 4 \Rightarrow y = 4 - x$

When $x = -2 \Rightarrow y = 4 + 2 = 6$

When $x = 0 \Rightarrow y = 4$

When $x = 2 \Rightarrow y = 4 - 2 = 2$

x	-2	-1	0	1	2
y	6	5	4	3	2

Thus ordered pairs of $x + y = 4$ are $\{(-2, 6), (-1, 5), (0, 4), (1, 3), (2, 2)\}$.

Also, $2x - y = 2 \Rightarrow -y = 2 - 2x \Rightarrow y = 2x - 2$

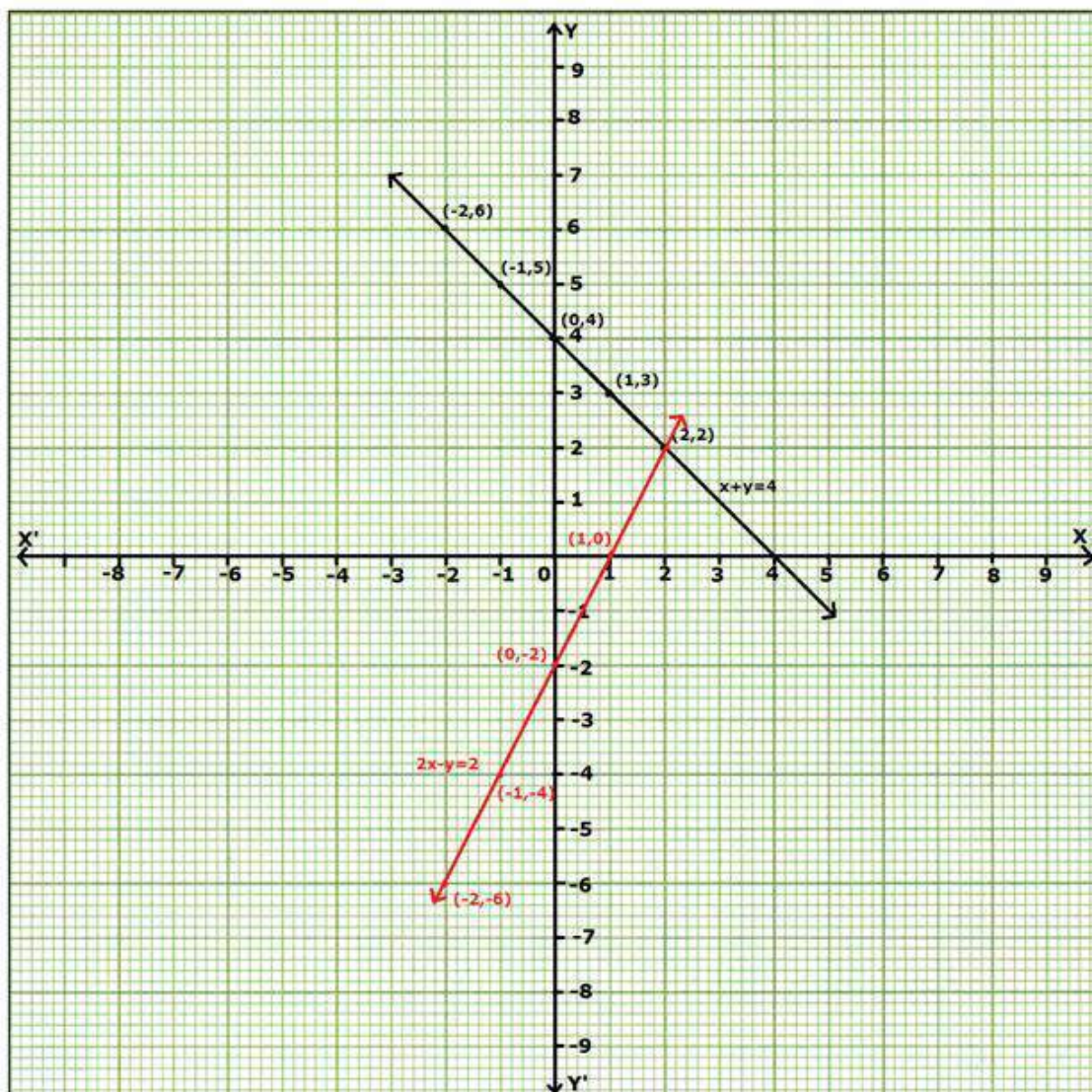
When $x = -2 \Rightarrow y = -4 - 2 = -6$

When $x = 0 \Rightarrow y = -2$

When $x = 2 \Rightarrow y = 4 - 2 = 2$

x	-2	-1	0	1	2
y	-6	-4	-2	0	2

Thus ordered pairs of $2x - y = 2$ are $\{(-2, -6), (-1, -4), (0, -2), (1, 0), (2, 2)\}$.



The point of intersection is $(2, 2)$.

Answer 8.

We have $5x-3y=1 \Rightarrow -3y = 1-5x \Rightarrow 3y = 5x-1 \Rightarrow y = \frac{5x-1}{3}$

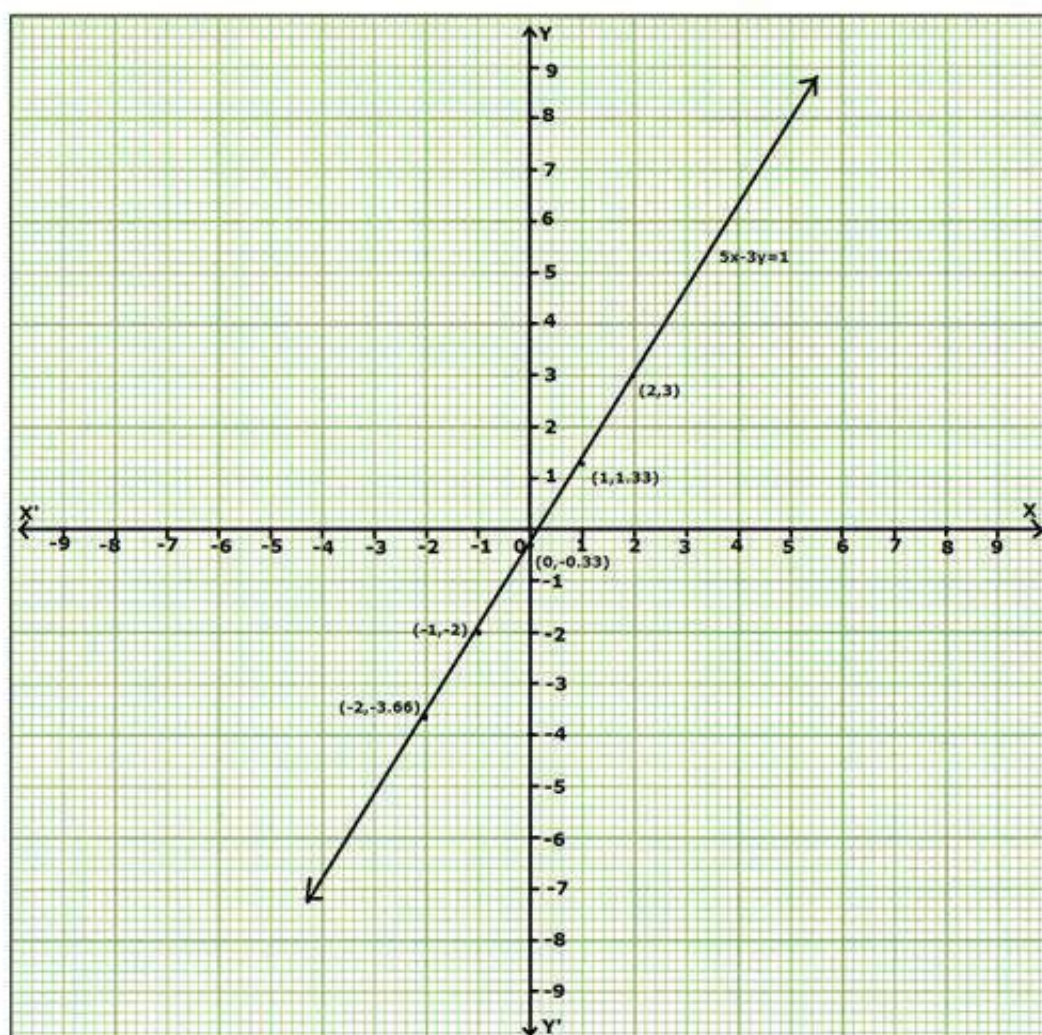
When $x = -2 \Rightarrow y = -\frac{11}{3} = -3.66$

When $x = 0 \Rightarrow y = -\frac{1}{3} = -0.33$

When $x = 2 \Rightarrow y = \frac{9}{3} = 3$

x	-2	-1	0	1	2
y	-3.66	-2	-0.33	1.33	3

Thus ordered pairs of $5x-3y=1$ are $\{(-2,-3.66), (-1,-2), (0,-0.33), (1,1.33), (2,3)\}$. Hence graph is as below.



(i) x , when $y = 8$

From graph we find that $x = 5$, when $y = 8$

(ii) y , when $x = 2$

From graph we find that $y = 3$, when $x = 2$

Answer 17.

$$\text{We have } 3x - 2y = 4 \Rightarrow -2y = 4 - 3x \Rightarrow 2y = 3x - 4 \Rightarrow y = \frac{3x - 4}{2}$$

$$\text{When } x = -2 \Rightarrow y = \frac{-6 - 4}{2} = -5$$

$$\text{When } x = 0 \Rightarrow y = -\frac{4}{2} = -2$$

$$\text{When } x = 2 \Rightarrow y = \frac{6 - 4}{2} = 1$$

x	-2	-1	0	1	2
y	-5	-3.5	-2	-0.5	1

Thus ordered pairs of $3x - 2y = 4$ are $\{(-2, -5), (-1, -3.5), (0, -2), (1, -0.5), (2, 1)\}$.

$$\text{Also, } x + y = 3 \Rightarrow y = 3 - x$$

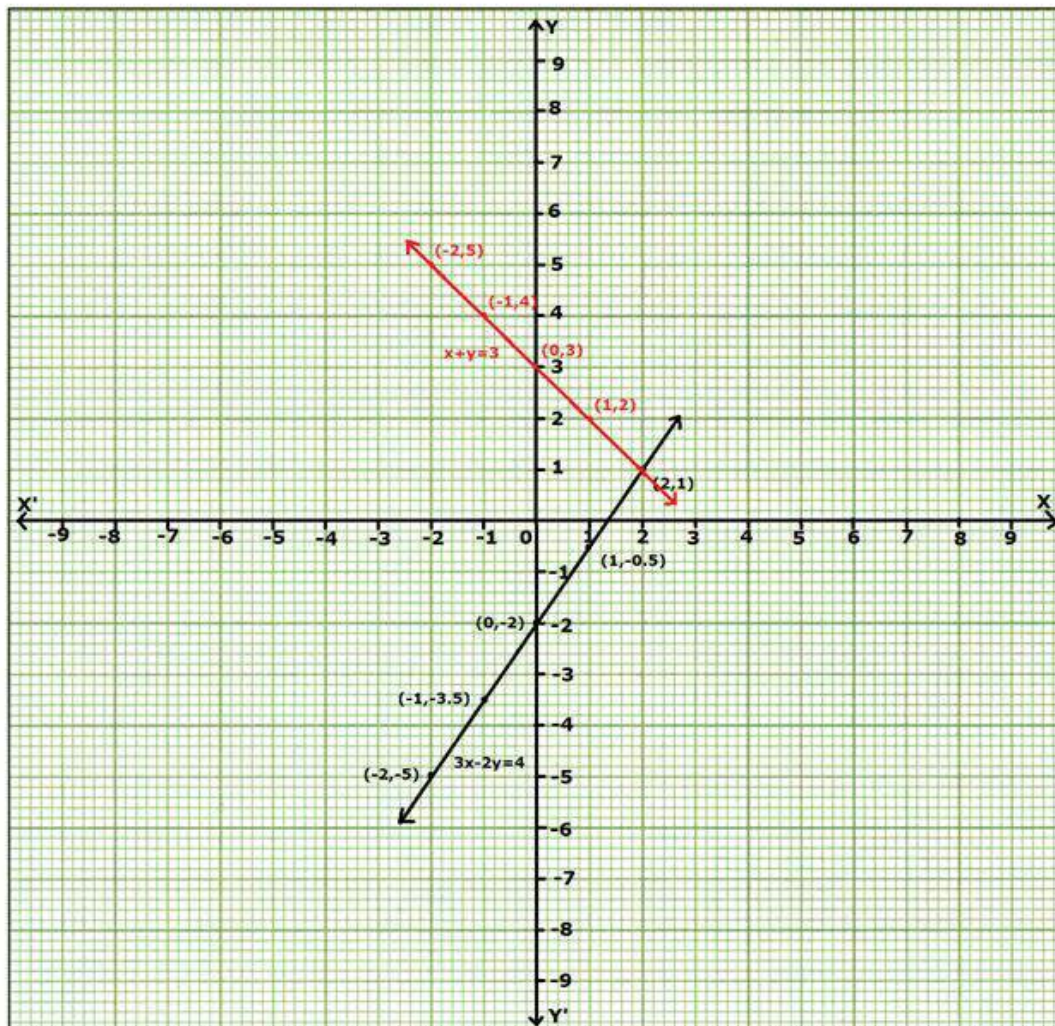
$$\text{When } x = -2 \Rightarrow y = 4 + 2 = 6$$

$$\text{When } x = 0 \Rightarrow y = 3$$

$$\text{When } x = 2 \Rightarrow y = 4 - 2 = 2$$

x	-2	-1	0	1	2
y	5	4	3	2	1

Thus ordered pairs of $x + y = 3$ are $\{(-2, 5), (-1, 4), (0, 3), (1, 2), (2, 1)\}$.



The point of intersection is $(2, 1)$.

Answer 18.

We have $2x - y = 8 \Rightarrow -y = 8 - 2x \Rightarrow y = 2x - 8$

When $x = -2 \Rightarrow y = -4 - 8 = -12$

When $x = 0 \Rightarrow y = -8$

When $x = 2 \Rightarrow y = 4 - 8 = -4$

x	-2	-1	0	1	2
y	-12	-10	-8	-6	-4

Thus ordered pairs of $2x - y = 8$ are $\{(-2, -12), (-1, -10), (0, -8), (1, -6), (2, -4)\}$.

Also, $4x + 3y = 6 \Rightarrow 3y = 6 - 4x \Rightarrow y = \frac{6 - 4x}{3}$

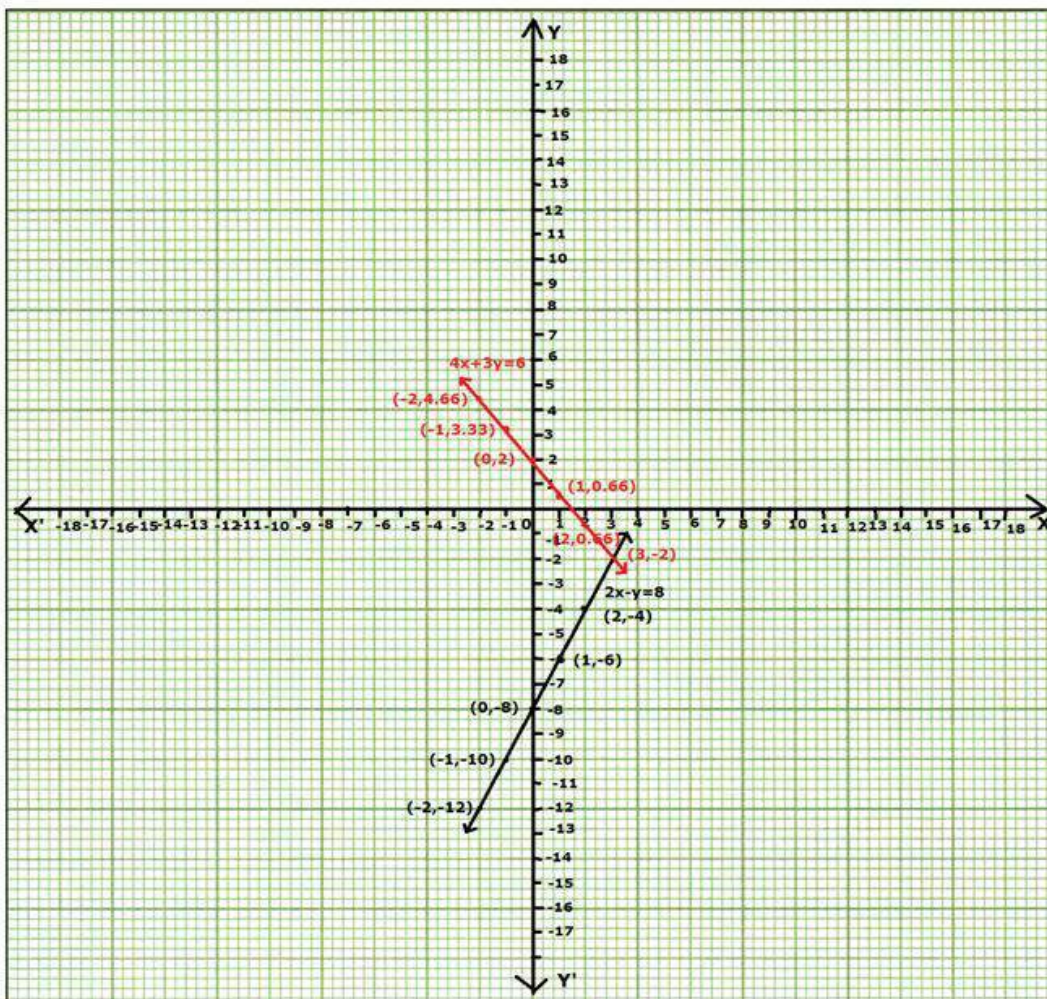
When $x = -2 \Rightarrow y = \frac{6 + 8}{3} = 4.66$

When $x = 0 \Rightarrow y = \frac{6}{3} = 2$

When $x = 2 \Rightarrow y = \frac{6 - 8}{3} = -0.66$

x	-2	-1	0	1	2
y	4.66	3.33	2	0.66	-0.66

Thus ordered pairs of $4x + 3y = 6$ are $\{(-2, 4.66), (-1, 3.33), (0, 2), (1, 0.66), (2, -0.66)\}$.



The point of intersection is $(3, -2)$.