

HW

15/7/2021

Ch-4 → Linear equations in two variables.

Date _____
Page _____

WORKSHEET

1) Find the value of k , if $x=2, y=1$ is a solution of the equation $2x+3y=k$.

Ans) Given equation :-

$$2x+3y=k$$

Now, putting $x=2, y=1$ in equation

$$\Rightarrow 2(2)+3(1)=k$$

$$\Rightarrow 4+3=k$$

$$\Rightarrow k=7$$

2) Find the points where the graph of the equation $3x+4y=12$ cuts the x -axis and the y -axis.

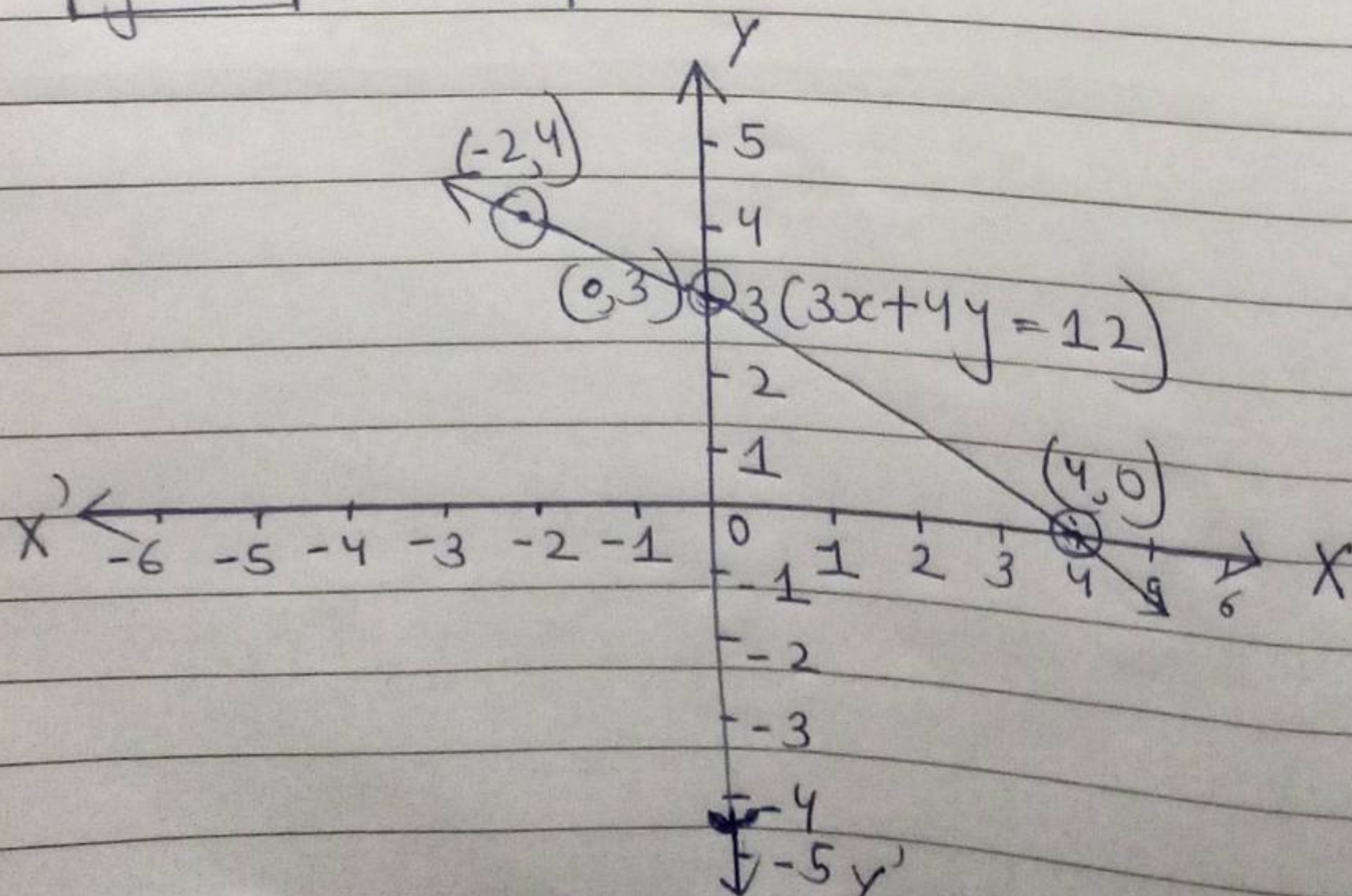
Ans)

x	0	4	-2
y	3	0	4

$$\begin{aligned} \Rightarrow x=0 \\ \Rightarrow 3x+4y=12 \\ \Rightarrow 3(0)+4y=12 \\ \Rightarrow 0+4y=12 \\ \Rightarrow 4y=12 \\ \Rightarrow y=\frac{12}{4} \end{aligned}$$

$$\Rightarrow \boxed{y=3}$$

$$\begin{aligned} \Rightarrow y=0 \\ \Rightarrow 3x+4y \\ \Rightarrow 3x+4(0)=12 \\ \Rightarrow 3x+0=12 \\ \Rightarrow 3x=12 \\ \Rightarrow \boxed{x=4} \end{aligned}$$



3) At what point does the graph of the linear equation $x+y=5$ meet a line which is parallel to the y -axis, at a distance 2 units from the origin and in the positive direction of x -axis.

Ans) Given:-

$$x+y=5$$

$$\frac{x}{5} + \frac{y}{5} = 1$$

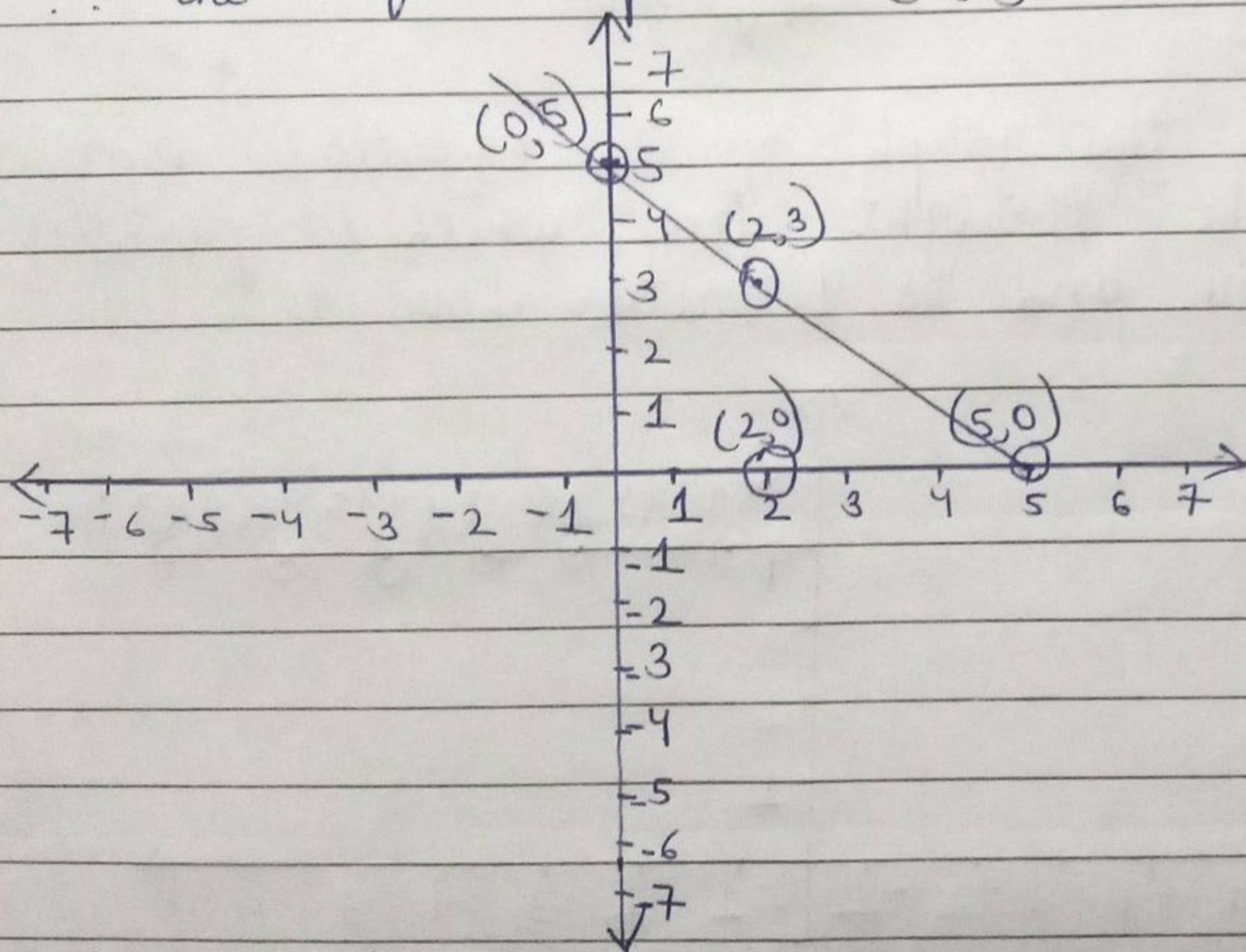
(Divide both sides of the equation by 5)

$$x=2$$

$$2+y=5$$

$$y=3$$

\therefore the required point is $(2,3)$.



4) Determine the point on the graph of the equation $2x+5y=20$ whose x -coordinate is $\frac{5}{2}$ times its ordinate

Ans) $x = \frac{5}{2}y$

$$2x + 5y = 20$$

$$2\left(\frac{5}{2}y\right) + 5y = 20$$

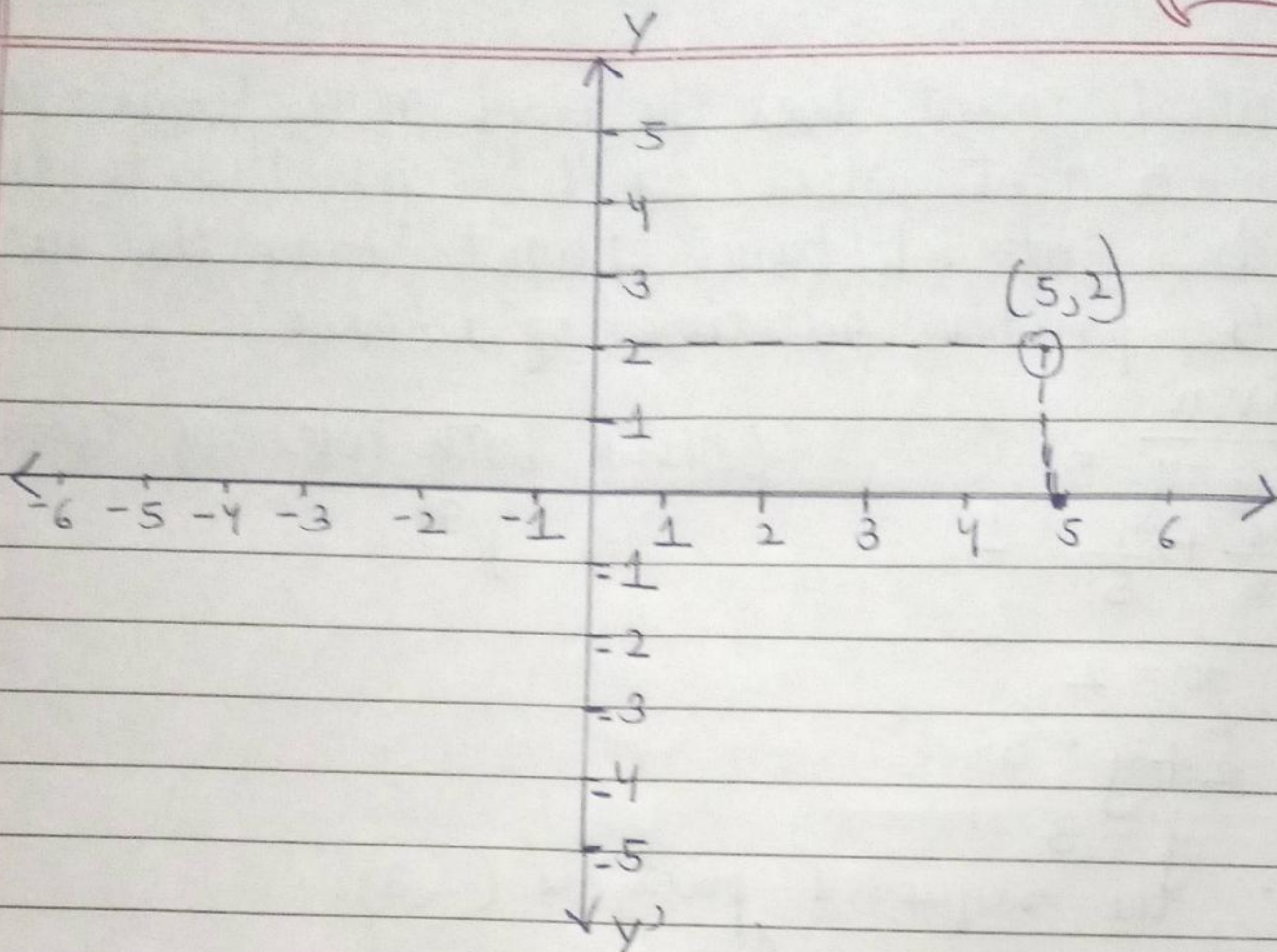
$$10y = 20$$

$$y = 2$$

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

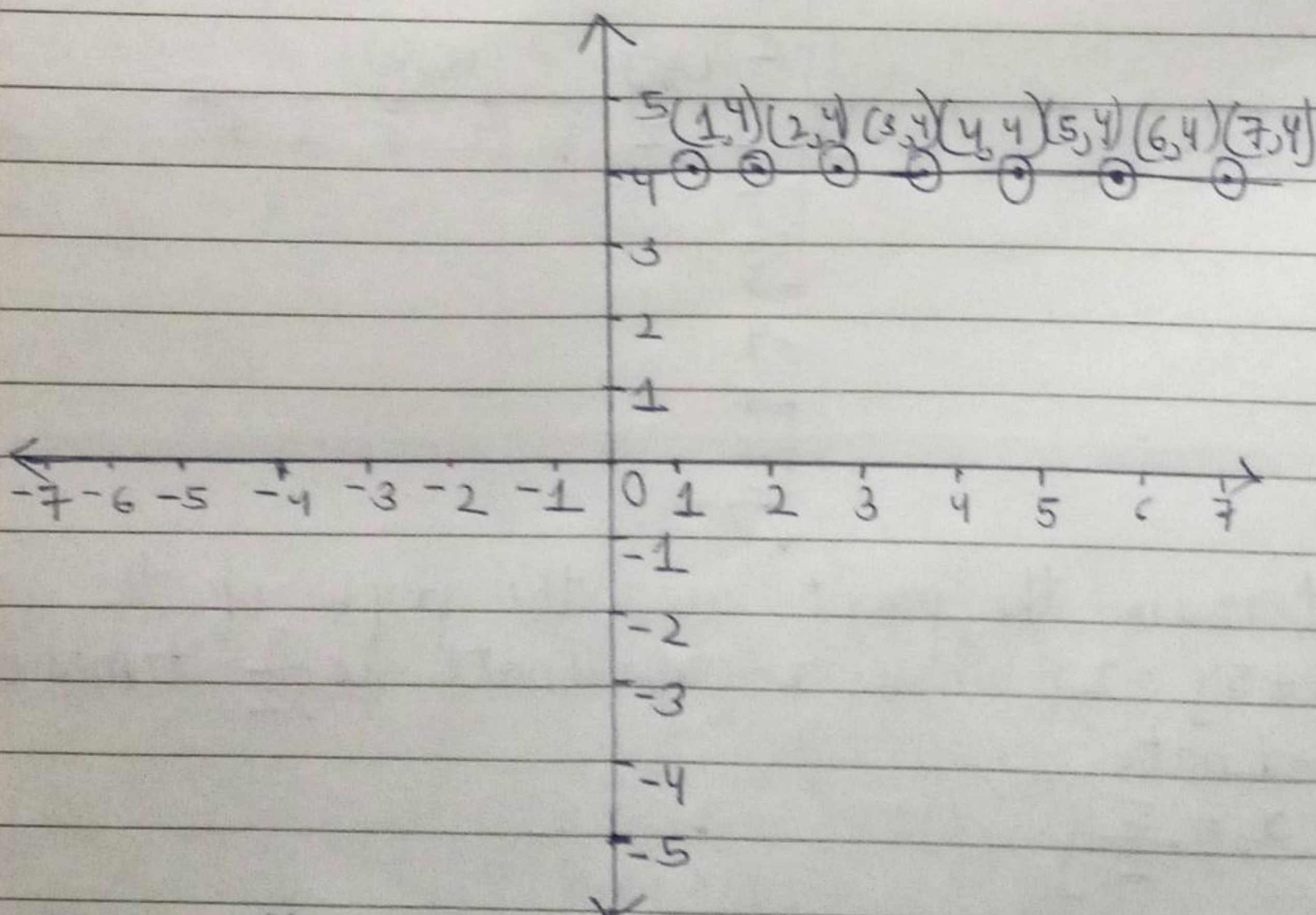
$$= 5$$

\therefore The point will be $(5,2)$.



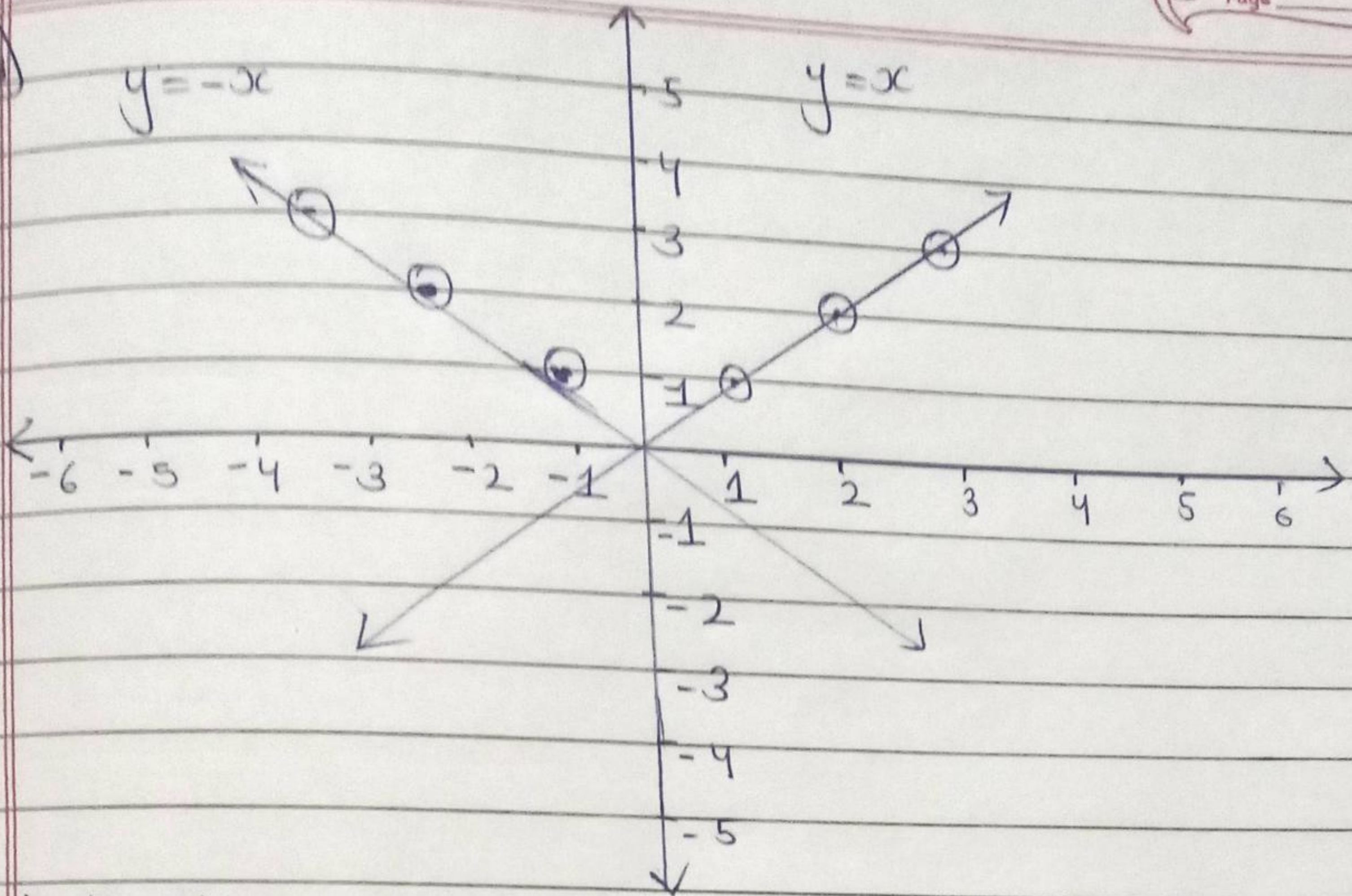
5) Draw the graph of the equation represented by the straight line which is parallel to the x-axis and is 4 units above it.

Ans)



6) Draw the graphs of linear equations $y = x$ and $y = -x$ on the same cartesian plane. What do you observe?

Ans)



$\Rightarrow y = x$

$\Rightarrow y = 1, y = 2, y = 3$
coordinates are: $(1,1); (2,2); (3,3)$

$\Rightarrow y = -x$

$-x = 1, -x = 2, -x = 3$

coordinates are: $(-1,1); (-2,2); (-3,3)$

\therefore on plotting both equations we get,
Two equations intersect at coordinate (0,0)
i.e. origin.