HOME ASSIGNMENT

LINEAR EQUATION IN TWO VARIABLES

Q1. Find the value of k, if $x=2, y=1$ is a solution of the equation $2x+3y=k$.

Sol: given, $x=2, y=1$

$2x+3y=k$

$\Rightarrow 2(2)+3(1)=k \Rightarrow 4+3=k$

$\Rightarrow k=7$ $\therefore$ The value of k is 7.

Q2 Find the points where the graph of the equation $3x+4y=12$ cuts the x-axis and the y-axis.

Sol: x intercept —

$y=0$

$\therefore$ Equation $= 3x+4(0)=12$

$\Rightarrow 3x=12 \Rightarrow x=4$

$\therefore$ The graph of the eq. $3x+4y=12$ cuts the x-axis at the point $(4,0)$.

y-intercept –

$x = 0$

$\therefore$ Equation $= 3(0) + 4y = 12$

$\Rightarrow 4y = 12 \Rightarrow y = 3$

$\therefore$ The graph of the eq. $3x + 4y = 12$, cuts the y-axis at the point $(0, 3)$.

Q3. 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 ~~of~~ 2 units from the origin and in the positive direction of x-axis.

Sol: The line is at a distance of 2 units from the origin and in the positive direction of x-axis.

So, $x = 2$

$\therefore$ The point is $(2, y)$

Putting $x = 2$ in eq. $x + y = 5$

$2 + y = 5$

$\Rightarrow y = 3$

$\therefore$ The point is $(2, 3)$.

Q4. Determine the point on the graph of the equation $2x + 5y = 20$ whose x-coordinate is $\frac{5}{2}$ times its ordinate

Sol: Let the ordinate of point be y.

so, x-coordinate $= \frac{5}{2}y$

Putting $x = \frac{5y}{2}$ in eq. $2x + 5y = 20$

$\cancel{2} \times \frac{5y}{\cancel{2}} + 5y = 20 \Rightarrow 5y + 5y = 20$

$\Rightarrow 10y = 20 \Rightarrow y = 2$

$\therefore$ The ordinate of point is 2

$\therefore$ The x- coordinate $= \frac{5}{\cancel{2}} \times \cancel{2} = 5$

so, the point is $(5, 2)$

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

sol: The straight line is parallel to x-axis and is 4 units above it.

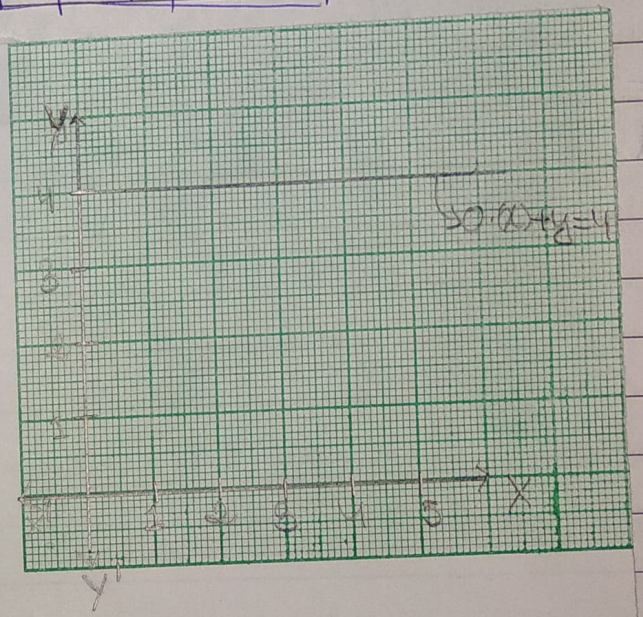
so, $y = 4$

$\therefore$ The equation of the graph

$= 0.(x) + y = 4$

Because for any value of x, the value of y remains constant i.e. 4.

x	1	2	3
y	4	4	4



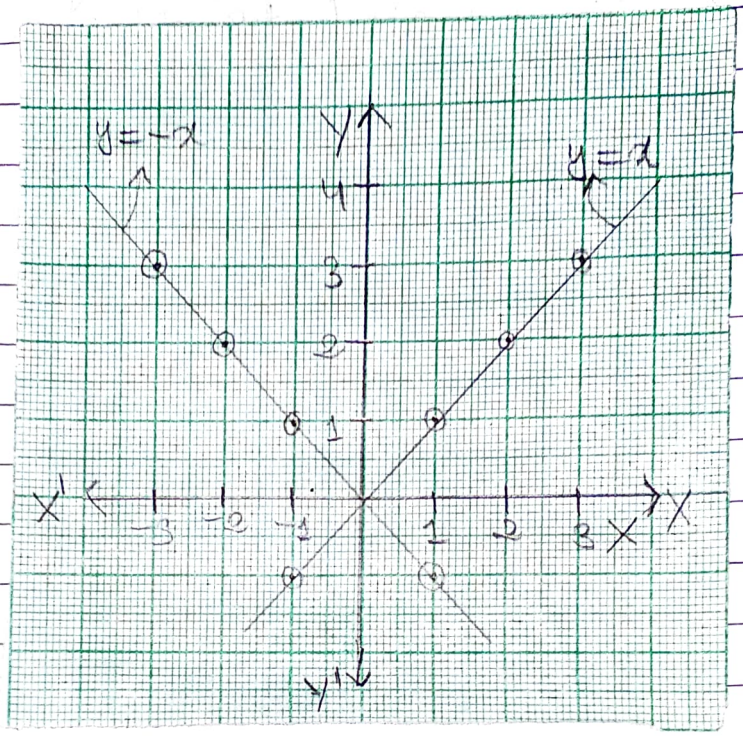
Q6. Draw the graphs of linear equations $y = x$ and $y = -x$ on the same cartesian plane. What do you observe?

Sol:- For equation $y = x$

x	1	2	3
y	1	2	3

For equation $y = -x$

x	-1	-2	-3
y	1	2	3



We I observe that the lines $y = x$ and $y = -x$ intersect at point $(0,0)$ ie the origin.