Linear Equations: Exercise 4.4

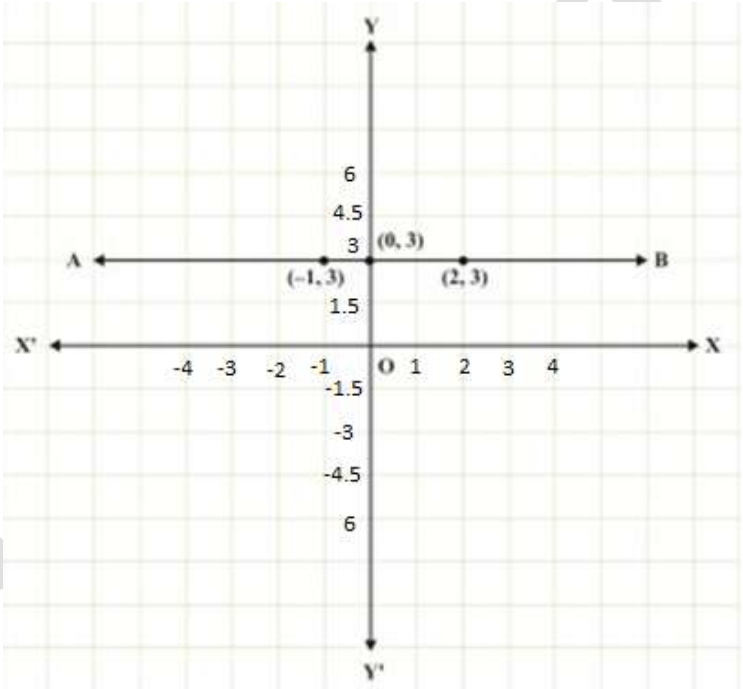
Q.1 Give the geometric representation of y = 3 as an equation.
(i) in one variable (ii) in two variables

Sol. **(i)** The geometric representation of the solution on the number line of equation y = 3, is treated as an equation in one variable is as under

(ii) Since, y = 3 can be written as 0.x + y = 3 as a linear equation in two variables x and y. Now all the values of x are permissible as 0. However, y must satisfy the relation y = 3.
Therefore, three solution of the given equation:

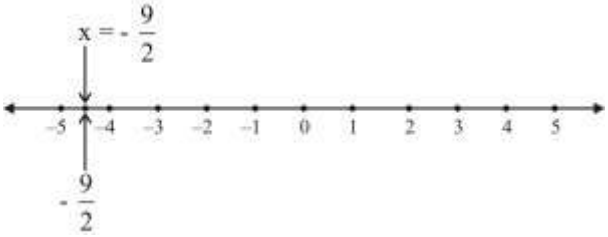
x = 1, y = 3; x = 2, y = 3; x = - 2, y = 3

Plot these points (0, 3) (2, 3) and (–2, 3) and on joining them to get the graph AB as a line parallel to x-axis at a distance of 3 units.



Q.2 Given the geometric representations of 2x + 9 = 0 as an equation.
(i) In one variable (ii) In two variables

Sol. **(i)** The geometric representation of the solution on the number line of equation 2x + 9 = 0 i.e., $x = -\frac{9}{2}$ is considered as an equation in one variable is as under.



(ii) Since, 2x + 9 = 0 can be written as 2x + 0.y + 9 = 0 as a linear equation in two variables x and y. Now all the values of x are permissible as 0. However, x must satisfy the relation 2x + 9 = 0

i.e., $x = -\frac{9}{2}$.

Thus, three solution of the given equation:

If $x = -\frac{9}{2}$, then $y = 0$;

If $x = -\frac{9}{2}$, then $y = 2$

And if $x = -\frac{9}{2}$, then $y = -2$.

So, plot these points $(-\frac{9}{2}, 0)$, $(-\frac{9}{2}, 2)$ and $(-\frac{9}{2}, -2)$ and on joining them we get the graph AB as a line parallel to y-axis at a distance of $\frac{9}{2}$ on the left of y-axis.