

RD Sharma Class 10 Solutions Pair of Linear Equations in Two Variables

The pair of equations formed is:

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

i.e., $x - 2y = 0$ (1)

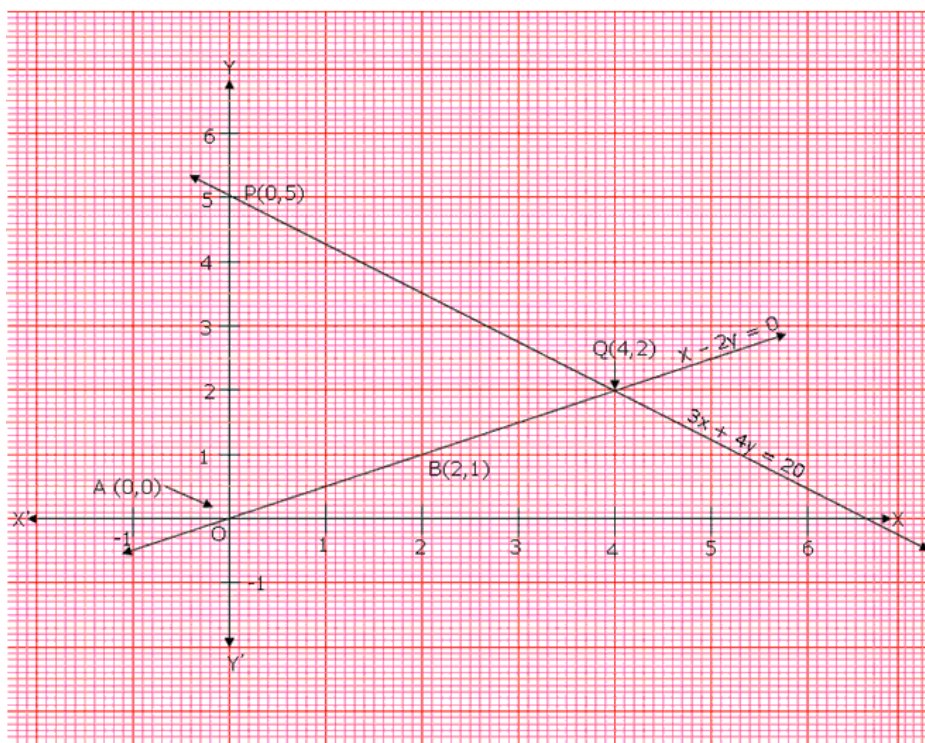
$$3x + 4y = 20$$
 (2)

Let us represent these equations graphically. For this, we need at least two solutions for each equation. We give these solutions in Table

x	0	2
$y = \frac{x}{2}$	0	1

x	0	$\frac{20}{3}$	4
$y = \frac{20 - 3x}{4}$	5	0	2

Recall from Class IX that there are infinitely many solutions of each linear equation. So each of you choose any two values, which may not be the ones we have chosen. Can you guess why we have chosen $x = 0$ in the first equation and in the second equation? When one of the variables is zero, the equation reduces to a linear equation in one variable, which can be solved easily. For instance, putting $x = 0$ in Equation (2), we get $4y = 20$ i.e., $y = 5$. Similarly, putting $y = 0$ in Equation (2), we get $3x = 20$ i.e., $x = \frac{20}{3}$. But as $\frac{20}{3}$ is not an integer, it will not be easy to plot exactly on the graph paper. So, we choose $y = 2$ which gives $x = 4$, an integral value.



Plot the points A(0,0), B(2,1) and P(0,5), Q(4,2), corresponding to the draw the lines AB and PQ, representing the equations $x - 2y = 0$ and $3x + 4y = 20$, as shown in fig.,

In fig., observe that the two lines representing the two equations are intersecting at the point (4,2).

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