



### Linear Equations in Two Variables Ex 13.3 Q18

**Answer :**

We are given,

$$4x - 3y + 4 = 0$$

We get,

$$y = \frac{4x + 4}{3}$$

Now, substituting  $x = 0$  in  $y = \frac{4x + 4}{3}$ , we get

$$y = \frac{4}{3}$$

Substituting  $x = -1$  in  $y = \frac{4x + 4}{3}$ , we get

$$y = 0$$

Thus, we have the following table exhibiting the abscissa and ordinates of points on the line represented by the given equation

$x$	0	-1
$y$	$\frac{4}{3}$	0

Plotting  $E(0, \frac{4}{3})$  and  $A(-1, 0)$  on the graph and by joining the points, we obtain the graph of equation

$$4x - 3y + 4 = 0.$$

We are given,

$$4x + 3y - 20 = 0$$

We get,

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

Now, substituting  $x = 0$  in  $y = \frac{20 - 4x}{3}$ , we get

$$y = \frac{20}{3}$$

Substituting  $x = 5$  in  $y = \frac{20 - 4x}{3}$ , we get

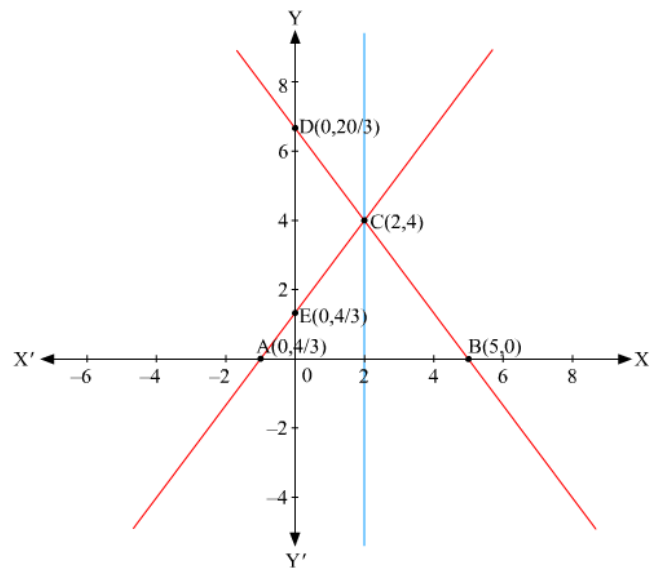
$$y = 0$$

Thus, we have the following table exhibiting the abscissa and ordinates of points on the line represented by the given equation

$x$	0	5
$y$	$\frac{20}{3}$	0

Plotting  $D(0, \frac{20}{3})$  and  $B(5, 0)$  on the graph and by joining the points, we obtain the graph of equation

$$4x + 3y - 20 = 0.$$



By the intersection of lines formed by  $4x - 3y + 4 = 0$  and  $4x + 3y - 20 = 0$  on the graph, triangle ABC is formed on x axis.

Therefore,

AB at x axis is the base of triangle ABC having AB = 6 units on x axis.

Draw CF perpendicular from C on x axis.

CF parallel to y axis is the height of triangle ABC having CF = 4 units on y axis.

Therefore,

Area of triangle ABC, say A is given by

$$A = \frac{1}{2} (\text{Base} \times \text{Height})$$

$$A = \frac{1}{2} (AB \times CF)$$

$$A = \frac{1}{2} (6 \times 4)$$

$$A = 12 \text{ sq. units}$$

\*\*\*\*\* END \*\*\*\*\*