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

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

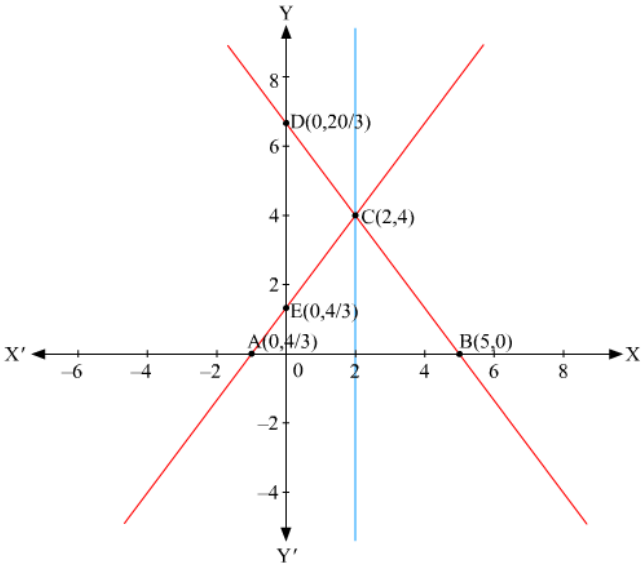
Substituting $x=5$ in $y=\frac{20-4x}{3}$,we get

$y=0$

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

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

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

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

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

********** END **********