Linear Equations in Two Variables Ex 13.3 Q14

Answer :

We are given,

$\frac{x}{3}+\frac{y}{4}=1$

$4x+3y=12$

We get,

$y=\frac{12-4x}{3}$

Now, substituting $x=0$ in $y=\frac{12-4x}{3}$,we get

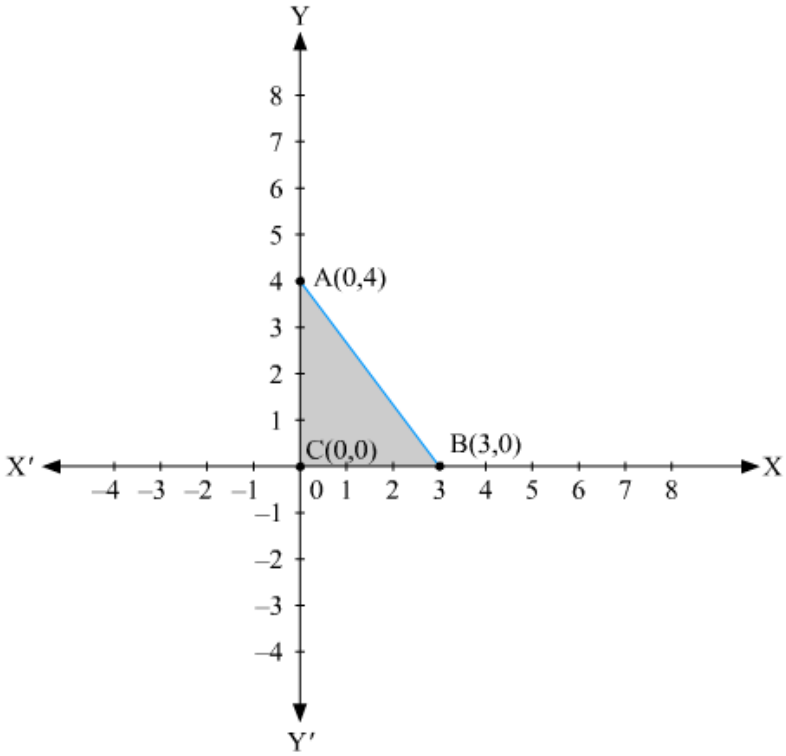
$y=4$

Substituting $x=3$ in $y=\frac{12-4x}{3}$,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	3
y	4	0



The region bounded by the graph is ABC which form a traingle.

AC at y axis is the base of traingle having AC = 4 units on y axis.

BC at x axis is the height of traingle having BC = 3 units on x axis.

Therefore,

Area of traingle ABC,say A is given by

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

$$A = \frac{1}{2}(\text{AC} \times \text{BC})$$

$$A = \frac{1}{2}(4 \times 3)$$

$$\boxed{A = 6 \text{ sq. units}}$$

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