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(Affiliated to CBSE up to +2 Level)

CLASS: X

DATE: 01-06-2020

SUB.: MATHEMATICS

Solve each of the following system of equations by using the method of cross multiplication

$$6x - 5y - 16 = 0$$

$$7x - 13y + 10 = 0$$

Solution:- $6x - 5y - 16 = 0$
 $7x - 13y + 10 = 0$

$$\begin{array}{ccc} x & = & y \\ \begin{array}{c} -5 \\ -13 \\ (-) \end{array} & \begin{array}{c} \nearrow \\ \searrow \end{array} & \begin{array}{c} -16 \\ +10 \\ (-) \end{array} \\ \begin{array}{c} 6 \\ 7 \\ (-) \end{array} & \begin{array}{c} \searrow \\ \nearrow \end{array} & \begin{array}{c} -5 \\ -13 \\ (-) \end{array} \end{array}$$

$$\Rightarrow \frac{x}{-50 + (-208)} = \frac{y}{-112 - 60} = \frac{1}{-18 + 35}$$

$$\Rightarrow \frac{x}{-258} = \frac{y}{-172} = \frac{1}{-43}$$

$$\Rightarrow \frac{x}{-258} = \frac{1}{-43} \quad \left| \quad \frac{y}{-172} = \frac{1}{-43} \right.$$

$$\Rightarrow x = \frac{-258}{-43} = 6 \quad \left| \quad y = \frac{-172}{-43} = 4 \right.$$

Hence $x = 6$ and $y = 4$ Ans.

Do yourself

1) $3x + 2y + 25 = 0$
 $2x + y + 10 = 0$

(ii) $2x + y - 35 = 0$
 $3x + 4y - 65 = 0$

(iii) $a^2x - b^2y = a^2b + ab^2$
 $ax - by = 2ab$