

Topic: Linear equations in two variables.

Solve each of the following systems of equations by using the method of cross multiplication.

$$1. \quad \begin{aligned} 2x + 5y &= 1 \\ 2x + 3y &= 3. \end{aligned}$$

$$2. \quad \begin{aligned} 2ax + 3by &= (a + 2b) \\ 3ax + 2by &= (2a + b) \end{aligned}$$

$$3. \quad \begin{aligned} \frac{x}{a} + \frac{y}{b} &= (a + b) \\ \frac{x}{a^2} + \frac{y}{b^2} &= 2 \end{aligned}$$

$$4. \quad \frac{5}{(x+y)} - \frac{2}{(x-y)} = -1, \quad \frac{15}{(x+y)} + \frac{7}{(x-y)} = 10$$

$$5. \quad \frac{ax}{b} + \frac{by}{a} = a + b, \quad ax + by = 2ab.$$

$$6. \quad \text{Find the values of } m \text{ and } n \text{ for which the following system of linear equations has infinitely many solutions.}$$

$$\begin{aligned} 3x + 4y &= 12 \\ (m+n)x + 2(m-n)y &= 5m-1. \end{aligned}$$

$$7. \quad \text{Find the value of } k \text{ for which the following linear equation has an infinite number of solutions.}$$

$$\begin{aligned} 5x + 2y &= 2k \\ 2(k+1)x + ky &= 3k+4 \end{aligned}$$

$$8. \quad \text{The difference of two numbers is 4 and the difference of their reciprocals is } \frac{4}{21}. \text{ Find the numbers.}$$

$$9. \quad \text{8 men and 12 boys can finish a piece of work in 5 days, while 6 men and 8 boys can finish it in 7 days. Find the time taken by 1 man alone and the by 1 boy alone to finish the work.}$$

Along with this N.C.E.R.T $\Rightarrow$ Exercise NO 3.5 and 3.6