Pair of Linear Equations in Two varibles Ex 3.1 Q5

**Answer :**

(i) Given equation are: $5x + 4y + 8 = 0$

$7x + 6y - 9 = 0$

Where, $a_1 = 5, b_1 = -4, c_1 = 8$

$a_2 = 7, b_2 = 6, c_3 = -9$

We have $\frac{a_1}{a_2} = \frac{5}{7}, \frac{b_1}{b_2} = \frac{-4}{6} = \frac{-2}{3}$ And $\frac{c_1}{c_2} = \frac{8}{-9} \Rightarrow \frac{a_1}{a_2} \neq \frac{b_1}{b_2}$

Thus the pair of linear equation is intersecting.

(ii) Given equation are: $9x + 3y + 12 = 0$

$18x + 6y + 24 = 0$

Where, $a_1 = 9, b_1 = 3, c_1 = 12$

$a_2 = 18, b_2 = 6, c_2 = 24$

We have $\frac{a_1}{a_2} = \frac{9}{18}, \frac{b_1}{b_2} = \frac{3}{6} \frac{c_1}{c_2} = \frac{12}{24}$

$\Rightarrow \frac{a_1}{a_2} = \frac{b_1}{b_2} = \frac{c_1}{c_2} = \frac{1}{2}$

Thus the pair of linear is coincident lines.

(iii) Given equation are: $6x - 3y + 10 = 0$

$2x - y + 9 = 0$

Where, $a_1 = 6, b_1 = -3, c_1 = 10$

$a_2 = 2, b_2 = -1, c_2 = 9$

We have $\frac{a_1}{a_2} = \frac{6}{2}, \frac{b_1}{b_2} = \frac{-3}{-1} \frac{c_1}{c_2} = \frac{10}{9}$

$\Rightarrow \frac{a_1}{a_2} = \frac{b_1}{b_2} = 3$

Thus the pair of line is parallel lines.

Pair of Linear Equations in Two varibles Ex 3.1 Q6

**Answer :**

(i) Given the linear equation are: $2x+3y-8=0$

We know that intersecting condition:

$$\frac{a1}{a2} \neq \frac{b1}{b2}$$

Where $a_1 = 2, b_1 = 3, c_1 = -8$

Hence the equation of other line is $\boxed{x+2y-4=0}$

(ii) We know that parallel line condition is: $\frac{a_1}{a_2} = \frac{b_1}{b_2}$

Where $a_1 = 2, b_1 = 3, c_1 = -8$

Hence the equation is $\boxed{2x+6y-12=0}$

(iii) We know that coincident line condition is: $\frac{a_1}{a_2} = \frac{b_1}{b_2} = \frac{c_1}{c_2}$

Where $a_1 = 2, b_1 = 3, c = -8$

Hence the equation is $\boxed{4x+6y-16=0}$

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