PAIR OF LINEAR EQUATIONS IN TWO VARIABLES

ELIMINATION BY EQUATING THE COEFFICIENT

EXERCISE

- **Q.1** Solve the following equations by the method of elimination by equating the coefficients.
 - (i) 12x + 5y = 17; 7x y = 6
 - (ii) 17x + 12y = -2; 15x + 8y = 6
 - (iii) $23x + 17y = 6; \quad 39x 19y = 58$
 - (iv) 43x 37y = 31; 13x + 23y = -59
 - (v) 0.4x + 3y = 1.2, $7x 2y = \frac{17}{6}$
 - (vi) (a+2b) x + (2a-b) y = 2, (a-2b) x + (2a+b) y = 3
 - (vii) $a(x + y) + b(x y) = a^2 ab + b^2$, $a(x + y) b(x y) = a^2 + ab + b^2$
- **Q.2** Solve the following system of equations by using the method of elimination by equating the co-efficients.

$$\frac{x}{2} + \frac{2y}{5} + 2 = 10;$$
 $\frac{2x}{7} - \frac{y}{2} + 1 = 9$

Q.3 Solve the following system of equations :

15x + 4y = 61; 4x + 15y = 72

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Q.4 Solve for x and y :

$$\frac{ax}{b} - \frac{by}{a} = a + b; \quad ax - by = 2ab$$

Q.5 Solve
$$(a - b) x + (a + b) y = a^2 - 2ab - b^2$$

 $(a + b) (x + y) = a^2 + b^2$

ANSWER KEY

1. (i)
$$x = 1$$
, $y = 1$

- (ii) x = 2, y = -3
- (iii) x = 1, y = -1
- (iv) x = -1, y = -2
- (v) $x = \frac{1}{2}$, $y = \frac{1}{3}$
- (vi) $x = \frac{5b-2a}{10ab}$, $y = \frac{a+10b}{10ab}$

(vii)
$$x = \frac{b^2}{2a}$$
, $y = \frac{2a^2 + b^2}{2a}$

2.
$$x = \frac{336}{17}$$
, $y = \frac{-80}{17}$.

3. x = 3, y = 4.

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4.
$$x = b$$
, $y = -a$

5.
$$x = a + b$$
, $y = \frac{-2ab}{a+b}$