CHAPTER 03

Pair of Linear Equations in Two Variables

Equations reducible to a pair of linear equations in two variables:

Sometimes the equations are not linear but can be reduced linear form by making some suitable substitutions.

For **example:**

(i) If the given equations involve $\frac{1}{x}$ and $\frac{1}{y}$, then put $\frac{1}{x}=u$ and $\frac{1}{y}=v$ to convert them into linear form.

(ii) If the given equations involve $\frac{1}{x\pm p}$ and $\frac{1}{y\pm q}$, where p and q are any two real numbers, then put $\frac{1}{x\pm p}=u$ and $\frac{1}{y\pm q}=v$ to convert them into linear form.

(iii) If the given equations involve $\frac{1}{x+y}$ and $\frac{1}{x-y}$ then put $\frac{1}{x+y}=u$ and $\frac{1}{x-y}=v$ to convert them into linear form.

Note:

After solving the pair equations in ‘u’ and ‘v’. Put the values of ‘u’ and ‘v’ in the used substitution, to get the values of ‘x’ and ‘y’.

Example:

Solve $\frac{5}{x}+\frac{3}{y}=2$ and $\frac{6}{x}-\frac{4}{y}=10$.

Sol.

Given,

$\frac{5}{x}+\frac{3}{y}=2$ and $\frac{6}{x}-\frac{4}{y}=10$

Let $\frac{1}{x}=a,\frac{1}{y}=b$ then given equation becomes

$5a+3b=2-----(1)$

$6a-4b=10-----(2)$