**Type 3:-** $\frac{dy}{dx} = P(x + y)$

Let, $x + y = v \ \ so\ that \left(1 + \frac{dy}{dx}\right) = \frac{dv}{dx}$

**Type 4:-** $\frac{dy}{dx} = \frac{f(x,y)}{g(x,y)}$ $[Homogeneous\ function]$

Let, $y = vx \ \ so\ that \ \frac{dy}{dx} = v + x\frac{dv}{dx}$

**Type 5:-** $\frac{dy}{dx} + P(x)y = Q(x)$

$(i) Find\ I.F. = \ e^{\int P(x)dx}$

$(ii) The\ solution\ is \ \ y \times (I.F.) = \ \int [Q(x) \times (I.F.)]dx + C$

**Type 6:-** $\frac{dx}{dy} + \ P(y)x = Q(y)$

$(i) Find\ I.F. = e^{\int P(y)dy}$

$(ii) The\ solution\ is \ \ x \times (I.F.) = \ \int [Q(y) \times (I.F.)]dy + C$