

Question about First Order Linear Differential Equation.....?

Q:

Please derive the Solution of first order linear differential equation...?

(OR)

Show that the solution of

$$\frac{dy}{dx} + P(x)y = Q(x) \text{ is}$$

$$y \cdot e^{\int P(x)dx} = \int Q(x) \cdot e^{\int P(x)dx} dx + c$$

Note:

Please explain me with step by step.