

$$y' = e^x, \quad y(0) = 1$$

Integrate:

$$y = \int e^x dx = e^x + C$$

Apply initial condition:

$$y(0) = e^0 + C = 1$$

$$\rightarrow 1 + C = 1$$

$$\rightarrow C = 0$$

$$\text{so, } y = e^x$$