

$$\frac{dy}{dx} = 3y$$

Separate,

$$\frac{1}{3y} dy = \int dx$$

Integrate:

$$\int \frac{1}{3y} dy = \int dx$$

$$\frac{1}{3} \ln|y| = x + c$$

$$\ln|y| = 3x + C_0$$

$$|y| = e^{(3x + C_0)}$$

RHS > 0,

$$y = C e^{3x}$$