

$$\frac{dy}{dx} = y + 4$$

Separate variables:

$$\frac{1}{y+4} dy = dx$$

Integrate:

$$\int \frac{1}{y+4} dy = \int dx$$

$$\ln|y+4| = x + C$$

$$|y+4| = e^{(x+C)}$$

Since RHS > 0,

$$y+4 = C_1 e^x$$

$$y = C e^x - 4$$