

$$y' = \frac{1}{x+2}, \quad y(0) = 0$$

Integrate, $y = \int \frac{1}{x+2} dx = \ln|x+2| + C$

Apply initial condition,

$$y(0) = \ln|2| + C = 0$$

$$C = -\ln|2|$$

so, $y = \ln|x+2| - \ln|2|$