

Find the general solution for y : $\ln y' = \ln x + y + 2$. [104 北科大化工 1(a)]

$$\text{[解]原式} \Rightarrow \ln \frac{y'}{x} = y + 2 \Rightarrow \frac{y'}{x} = e^{y+2} \Rightarrow y' = xe^{y+2} \Rightarrow \frac{dy}{dx} = xe^{y+2}$$

$$e^{-(y+2)} dy = x dx \Rightarrow \int e^{-(y+2)} dy = \int x dx + C \Rightarrow -e^{-(y+2)} = \frac{x^2}{2} + C$$