

Find the solution $y + 5 = \ln(y')$, $y(0) = 1$. [106 中興精密 7(a)]

$$\text{[解]原式} \Rightarrow y' = e^{y+5} \Rightarrow \frac{dy}{dx} = e^{y+5} \Rightarrow e^{-(y+5)} dy = dx \Rightarrow \int e^{-(y+5)} dy + C = \int dx$$

$$-e^{-(y+5)} + C = x \Rightarrow x + e^{-(y+5)} = C$$

$$y(0) = 1 \Rightarrow 0 + e^{-6} = C \Rightarrow C = e^{-6}$$

$$\text{解為 } x + e^{-(y+5)} = e^{-6}$$