

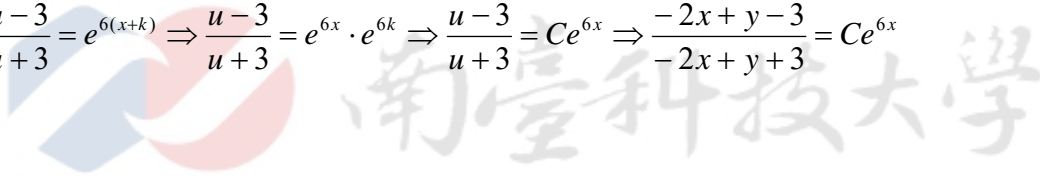
$$y' = (-2x + y)^2 - 7 \quad [106 \text{ 中山機電乙丙 1(a)}]$$

[解] 令  $u = -2x + y \Rightarrow u' = -2 + y' \Rightarrow y' = u' + 2$

$$\text{原式} \Rightarrow u' + 2 = u^2 - 7 \Rightarrow \frac{du}{dx} = u^2 - 9 \Rightarrow \frac{du}{u^2 - 9} = dx \Rightarrow \int \frac{du}{u^2 - 9} = \int dx + C$$

$$\frac{1}{6} \int \left( \frac{1}{u-3} - \frac{1}{u+3} \right) du = \int dx + C \Rightarrow \frac{1}{6} [\ln(u-3) - \ln(u+3)] = x + k \Rightarrow \ln \frac{u-3}{u+3} = 6(x+k)$$

$$\frac{u-3}{u+3} = e^{6(x+k)} \Rightarrow \frac{u-3}{u+3} = e^{6x} \cdot e^{6k} \Rightarrow \frac{u-3}{u+3} = Ce^{6x} \Rightarrow \frac{-2x+y-3}{-2x+y+3} = Ce^{6x}$$



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