

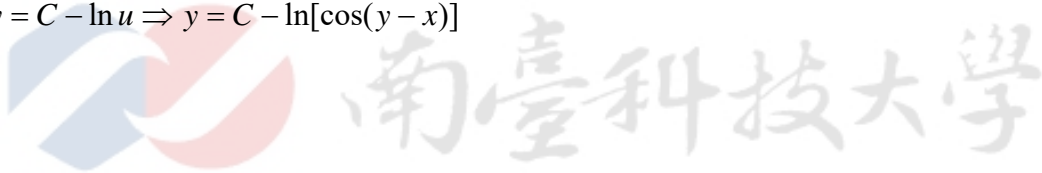
Solve $\sin(y-x)dx + [\cos(y-x) - \sin(y-x)]dy = 0$. [97 宜蘭生物機電 1]

[解]原式 $\Rightarrow \sin(y-x)\frac{dx}{dy} + \cos(y-x) - \sin(y-x) = 0 \cdots \cdots (i)$

令 $u = \cos(y-x) \Rightarrow \frac{du}{dy} = -\sin(y-x) \cdot (1 - \frac{dx}{dy}) = -\sin(y-x) + \sin(y-x)\frac{dx}{dy}$

(i) $\Rightarrow \frac{du}{dy} + u = 0 \Rightarrow \frac{du}{u} + dy = 0 \Rightarrow \int \frac{du}{u} + \int dy = C \Rightarrow \ln u + y = C$

$y = C - \ln u \Rightarrow y = C - \ln[\cos(y-x)]$



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