

系級：_____ 學號：_____ 姓名：_____

1. 試以正合法求下述微分方程式：

(1) $2y^2 - 9xy + (3xy - 6x^2)y' = 0$

(2) $e^{-y}dx + e^{-x}(-e^{-y} + 1)dy = 0$ (hint: $\mu = e^{x+y}$)

2. 試解下述一階線性微分方程：

(1) $y' - y = 2e^{4x}$, $y(0) = 3$

(2) $y' + \frac{1}{x-2}y = 3x$, $y(3) = 4$

(3) $y' + (\sec x)y = \cos x$

(4) $y' - \frac{3}{x}y = 2x^2$

3. 試解下述 Bernoulli 微分方程：

(1) $y' = -\frac{1}{x}y^2 + \frac{2}{x}y$

(2) $y' = \frac{x}{y} + \frac{y}{x}$