

系級：_____ 學號：_____ 姓名：_____

1. 試以一階線性 ODE 法求解下述 ODE:

(1) $xy' + 2y = 2e^{x^2}$

(2) $y \sin y - 3xyy' = y$

2. 試求解下述常微分方程式

(1) $y' + \frac{3}{x}y = -2xy^{\frac{5}{2}}$

(2) $y' = y^2 - 2xy + x^2 + 1$

(3) $x^2(y')^2 + 4xyy' + 3y^2 = 0$

3. 試求出下述常微分方程式之通解(general solution)與奇解(singular solution)

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