

系級：_____ 學號：_____ 姓名：_____

1. 給一微分方程 $y'' + 6y' + 9y = 0$, 已知其解為 $y_1 = e^{-3x}$ (重根), 試用已知一解求另一補解找出 $y_2 = ?$
2. 給一微分方程 $x^2 y'' - 3xy' + 4y = 0$, 已知一補解為 $y_1 = x^2$, 試求另一補解 y_2
3. 試解下述二階以上常係數齊次 ODE
 - (1) $y'' - 4y' + 2y = 0$
 - (2) $y'' - 10y' + 25y = 0$
 - (3) $y'' + 2y' + 6y = 0$
 - (4) $y'' - 2y' + (\pi^2 + 1)y = 0$; $y(\frac{1}{4}) = 0$, $y'(\frac{1}{4}) = -\pi \sqrt[4]{4e}$
 - (5) $4y'' + 4y' + 1y = 0$; $y(0) = -2$, $y(2) = e^{-1}$
 - (6) $y''' + 6y'' + 12y' + 8y = 0$