

系級：_____ 學號：_____ 姓名：_____

1. 試解下述微分方程：

(1) $y'' - 8y' - 48y = 0$

(2) $y'' - \sqrt{12}y' + 3y = 0$

(3) $y'' + 4y' + 29y = 0$

(4) $y''' + y'' + 3y' - 5y = 0$

(5) $y''' + 6y'' + 12y' + 8y = 0$

2. 請以待定係數法求解下述微分方程：

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

(2) $y'' - 4y' + 3y = 2e^x$

(3) $y'' + 6y' + 9y = 12xe^{-3x}$

(4) $y'' + 4y' + 29y = 13\cos 5x$

(5) $y'' - 8y' - 48y = x$

3. 請以參數變異法求解下述微分方程：

$$y'' + 3y' + 2y = \frac{e^{-x}}{e^x + 1}$$