

系級：_____ 學號：_____ 姓名：_____

試以正合法求下述微分方程式：

1. (1) $(2x^3 + 3y)dx + (3x + y - 1)dy = 0$

(2) $x^3 - y \sin x + (\cos x + 2y)y' = 0$

(3) $(y^2 e^{xy^2} + 4x^3)dx + (2xye^{xy^2} - 3y^2)dy = 0$

(4) $\frac{dy}{dx} = \frac{-\cos(xy) + xy \sin(xy)}{-x^2 \sin(xy) + 2y}$

(5) $\cos(\pi x) \cos(2\pi y)dx = 2 \sin(\pi x) \sin(2\pi y)dy, y\left(\frac{3}{2}\right) = \frac{1}{2}$

2. (1) $xdy - ydx - (1 - x^2)dx = 0$

(2) $\sin y dx + \cos y dy = 0$

(3) $2dx - e^{y-x} dy = 0$

(4) $(2xy^2 + y)dx + (x + 2x^2y - x^4y^3)dy = 0$

(5) $(7x^5y^5 + 2y \sin x + xy \cos x)dx + (6x^6y^4 + 2x \sin x)dy = 0$