

國立臺灣海洋大學河海工程學系 2002 工程數學 (一) 第一次作業小考解答

Answer	Differential Equation	Solution	Explicit	Implicit
(e)	(1). $\frac{dy}{dx} = \frac{-2xy}{x^2-y^2}$	(a). $y = -3e^{-4x} + c$	(✓)	()
(c)	(2). $\frac{d^2y}{dx^2} + 4y = \sin(x)$	(b). $y = -1 - \frac{3}{2}(\cos(x) + \sin(x))$	(✓)	()
(b)	(3). $\frac{dy}{dx} - y = 1 + 3\sin(x)$	(c). $y = \cos(2x) + \sin(2x) + \frac{1}{3}\sin(x)$	(✓)	()
(d)	(4). $\sin(y)dx + \cos(y)dy = 0$	(d). $e^x \sin(y) = c$	()	(✓)
(a)	(5). $\frac{dy}{dx} + 4y = 0$	(e). $x^2y - \frac{y^3}{3} = c$	()	(✓)

Where c is a constant and $y(x)$ is function of x .