

淡江大學 110 學年度日間部寒假轉學生招生考試試題

>7

系別：工學院三年級

科目：工 程 數 學

9-1

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1. Check exactness and/ or find the integration factor to solve the equation:

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

2. The second order I.V.P homogeneous equation. Find the solution of equation:

$$x^2 y'' - 5xy' + 10y = 0, y(1) = 4, y'(1) = -6$$

3. Compute the Inverse Laplace transform of following functions:

$$\frac{2s - 1}{(s - 1)(s^2 + 4s + 3)}$$

4. Find the eigenvalues and eigenvectors of the matrix:

$$A = \begin{bmatrix} -1 & 4 \\ 0 & 3 \end{bmatrix}$$

5. Find the solution of this system or show that the system has no solution?

$$2 X_1 - 3X_2 + X_4 = 1$$

$$3 X_2 + X_3 - X_4 = 0$$

$$2 X_1 - 3X_2 + 10X_3 = 0$$