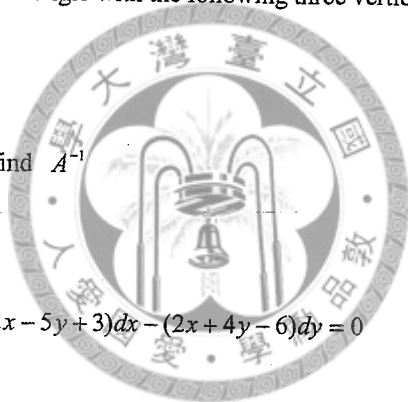


1. (15%) Find the unit vector (\bar{e}) that is perpendicular to the plane determined by $\bar{A} = 2\bar{i} - 6\bar{j} - 3\bar{k}$ and $\bar{B} = 4\bar{i} + 3\bar{j} - \bar{k}$.
2. (10%) Find $\int_C [(x+y)dx + (2x-z)dy + (y-z)dz]$, where C is the boundary of a triangle with vertices (2, 0, 0), (0, 3, 0), and (0, 0, 4).
3. (15%) If $A = \begin{bmatrix} 1 & 2 \\ 3 & -4 \end{bmatrix}$ and $p(x) = x^2 + 5x + 4$, compute $p(A)$.
4. (10%) Find the solution for $(1 - \cos \theta)dr = r \sin \theta d\theta$
5. (15%) Compute the area of the triangle with the following three vertices: P(2, 3, 5), Q(4, 2, -1), and R(3, 6, 4).
6. (15%) If $A = \begin{bmatrix} 1 & 2 & 4 \\ -1 & 0 & 3 \\ 3 & 1 & -2 \end{bmatrix}$, find A^{-1} .
7. (10%) Find the solution for $(2x - 5y + 3)dx - (2x + 4y - 6)dy = 0$
8. (10%) Find the solution for $y'' + y' - 2y = 0$ with the initial conditions of $y(0) = 4$ and $y'(0) = 1$



試題隨卷繳回