

姓名: _____

葉均承

應數一線性代數

學號: _____

Quiz 16 練習卷

考試日期: 2024/01/10

不可使用手機、計算器，禁止作弊!

1. Determinant whether the given 4 points lie in a plane in \mathbb{R}^4 . If so, find its area. If not, find its volume.

$$A(2, 1, 1, 1), B(3, 1, -6, 2), C(5, 0, 2, 3), D(2, -3, 2, 6)$$

Answer:

☐ $ABCD$ are coplanar(共平面), and the area of the quadrilateral (四邊形) is _____.

☐ $ABCD$ are NOT coplanar, and the volume of the tetrahedron(四面體) is _____.

2. Determinant whether the given 4 points lie in a plane in \mathbb{R}^4 . If so, find its area. If not, find its volume.

$$A(2, 1, 1, 1), B(3, 1, -6, 2), C(4, 5, -14, -2), D(2, -3, 2, 6)$$

Answer:

☐ $ABCD$ are coplanar(共平面), and the area of the quadrilateral (四邊形) is _____.

☐ $ABCD$ are NOT coplanar(共平面), and the volume of the tetrahedron (四面體) is _____.

3. Let A be an $n \times n$ matrix. Prove that

$$\det(\operatorname{adj}(A)) = \det(A)^{n-1}$$