姓名: SOLUTION　　葉均承　　應數一線性代數

學號: _____　　**Quiz 12**　　考試日期: 2024/12/11

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 $\mathbb{R}^3$. If so, find its area. If not, find its volume.

$$A(2,0,1), B(3,2,4), C(1,2,0), D(1,6,2)$$

Answer: ☑ $ABCD$ are coplanar(共平面), and the area is **0** .

☒ $ABCD$ are NOT coplanar(共平面), and the volume is **N/A** .

Solution：

Similar with 112-1 quiz 14. The volume is 0, thus they are coplanar.

2. Let $\vec{a}, \vec{b}, \vec{c} \in \mathbb{R}^3$. Show that $\vec{a} \times (\vec{b} + \vec{c}) = \vec{a} \times \vec{b} + \vec{a} \times \vec{c}$.

Solution：

Section 4-1 problem 59. 用定義驗證