姓名: SOLUTION　　葉均承　　應數一線性代數

學號: _____　　**Quiz 5**　　考試日期: 2025/10/15

不可使用手機、計算器，禁止作弊!

1. Check if $\{[2x, x+y, y] \mid x, y \in \mathbb{R}\}$ is a subspace of $\mathbb{R}^2$.

   Solution：

   No, since $\{[2x, x+y, y] \mid x, y \in \mathbb{R}\}$ is not in $\mathbb{R}^2$.

2. Check if the line $y = mx$ is a subspace of $\mathbb{R}^2$. (Hint: write the line as $W = \{[x, mx] \mid x \in \mathbb{R}\}$)

   Solution：

   Yes, check 1-6 problem 11.

3. Given A, B are two singular (i.e. not invertible) matrices. Prove or disprove (證明或反證) that if $C = AB$, then C is also a singular matrix.

Solution：

1-5, problem 23 (d).