姓名: SOLUTION 葉均承 應數一線性代數

學號: _____ **Quiz 11** 考試日期: 2020/12/24

1. 請框出答案. 2. 不可使用手機、計算器，禁止作弊! 3. 背面還有題目

1. Let A is a 4×4 matrix with determinant 5. Find $\det(A^3)$.

Since $\det(AB) = \det(A)\det(B)$, $\det(A^3) = \det(A)^3 = 5^3 = 125$.

2. Prove that if A is invertible, then $\det(A^{-1}) = 1/\det(A)$.

Since A is invertible, then A^{-1} exists and $\det(A) \neq 0$.
By theorem:

$$\text{for two matrix } A, B, \det(AB) = \det(A)\det(B)$$

, we have $1 = \det(I) = \det(AA^{-1}) = \det(A)\det(A^{-1})$.
Hence $\det(A^{-1}) = 1/\det(A)$.