Name: _____
Student ID: _____

Quiz 6

This quiz is graded out of 10 marks. No books, calculators, notes or cell phones are allowed. You must show all your work, the correct answer is worth 1 mark the remaining marks are given for the work. If you need more space for your answer use the back of the page.

Question 1. §1.7 #37 *(5 marks)* A square matrix A is said to be *skew-symmetric* if $A^T = -A$. Prove:

a. *(2 marks)* If A is an invertible skew-symmetric matrix, then A^{-1} is skew-symmetric.

b. *(3 marks)* If A and B are skew-symmetric matrices, then so are A^T, $A \pm B$, and kA for any scalar.

Question 2. §2.1 #36 *(5 marks)* Show that

$$\det(A) = \frac{1}{2}\begin{vmatrix} \operatorname{tr}(A) & 1 \\ \operatorname{tr}(A^2) & \operatorname{tr}(A) \end{vmatrix}$$

for every 2×2 matrix A.