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. §2.1 #25 *(5 marks)* Evaluate $\det(A)$ by a cofactor expansion along a row or column of your choice.

$$A = \begin{bmatrix} 3 & 3 & 0 & 5 \\ 2 & 2 & 0 & -2 \\ 4 & 1 & -3 & 0 \\ 2 & 10 & 3 & 2 \end{bmatrix}$$

Question 2. §2.2 #24 *(5 marks)* Evaluate the determinant of the given matrix by reducing the matrix to row echelon form.

$$\begin{bmatrix} 1 & -2 & 3 & 1 \\ 5 & -9 & 6 & 3 \\ -1 & 2 & -6 & -2 \\ 2 & 8 & 6 & 1 \end{bmatrix}$$

Question 3. 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.