MAU11S02 third Friday quiz, week 4
Friday 26/2/21 due 4pm Friday 5/3/21

Rules and procedures.
1. Attempt 3 questions. Only *your first three answers* will be marked. **2.** Each question carries 20 marks, so the maximum quiz mark is 60. **3.** If a particular method of solution is stipulated, you get no marks if you don't use it. **4. *Show all work.*** No marks will be given for answers which do not show the calculations. **5.** Your answers should be scanned and submitted to Blackboard as a 'Friday assignment.'

Question 1. Let

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

Calculate $\det(A)$ using cofactor expansion along the fourth column.

Question 2. With the same matrix A as above, calculate $\det(A)$ again by reducing to upper triangular form.

Question 3. With the same matrix A as above, Calculate the (1,3)- and (2,1)- elements of $\text{Adj}(A)$ and of A^{-1}.

Question 4. Let

$$A = \begin{bmatrix} -2 & -4 & 6 \\ 2 & 3 & -3 \\ 1 & 0 & 2 \end{bmatrix} B = \begin{bmatrix} 2 & 2 & 2 \\ 2 & 2 & -1 \\ 3 & 5 & 5 \end{bmatrix}$$

Calculate (i) AB (ii) $\det(AB)$ (iii) $\det((AB)^{-1})$.

Question 5. Let A be a 5×5 matrix with $\det(A) = 5$. What is $\det(2A)$? Explain your answswer.