MAU11S02 third Monday quiz, week 4
Monday 22/2/21 due 4pm Monday 1/3/21

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 'Monday assignment.'

Question 1. Let
$$A = \begin{bmatrix} 1 & 1 & -3 & -7 \\ 1 & 2 & -6 & -16 \\ -2 & -3 & 9 & 24 \\ 1 & -1 & 4 & 13 \end{bmatrix}$$
Calculate $\det(A)$ using cofactor expansion along the second 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 Adj(A) and of A^{-1}.

Question 4. Let
$$A = \begin{bmatrix} 2 & 6 & -12 \\ 1 & 3 & -10 \\ -3 & -10 & 9 \end{bmatrix} B = \begin{bmatrix} -1 & 1 & 5 \\ -2 & 3 & 2 \\ 1 & 0 & -4 \end{bmatrix}$$
Calculate (i) AB (ii) $\det(AB)$ (iii) $\det((AB)^{-1})$. (See question 5).

Question 5. Given that A is an invertible square matrix, express $\det(A^{-1})$ in terms of $\det(A)$.