

MAU11S02 second Monday quiz, week 3
Monday 15/2/21 due 4pm Monday 22/2/21

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. Calculate the adjoint, and hence the inverse (no other method), of the following matrix.

$$\begin{bmatrix} 2 & 6 & -4 \\ -2 & -6 & 5 \\ 3 & 11 & -6 \end{bmatrix}$$

Question 2. Let

$$A = \begin{bmatrix} 2 & 6 & -12 \\ 1 & 3 & -10 \\ -3 & -10 & 9 \end{bmatrix} \quad B = \begin{bmatrix} -1 & 1 & 5 \\ -2 & 3 & 2 \\ 1 & 0 & -4 \end{bmatrix}$$

Calculate (i) AB (ii) $\det(A)$ (iii) $\det(B)$ (iv) $\det(AB)$.

Question 3. Calculate the (1,1)- and (1,2)- minors of the matrix below.

$$A = \begin{bmatrix} 1 & 1 & -3 & -7 \\ 1 & 2 & -6 & -16 \\ -2 & -3 & 9 & 24 \\ 1 & -1 & 4 & 13 \end{bmatrix}$$

Question 4. Calculate the (1,3)- and (1,4)- minors of the above matrix, and with its four minors calculated, compute its determinant.

Question 5. Calculate the adjoint of the following matrix. Can it be used to calculate the inverse?

$$\begin{bmatrix} 2 & 0 & 2 \\ -3 & 1 & 2 \\ 0 & 3 & 15 \end{bmatrix}$$