

MAU11S02 second Friday quiz, week 3
Friday 11/2/22 due 4pm Monday 14/2/22

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. Using the adjoint matrix, no other method, invert

$$\begin{bmatrix} -2 & -4 & 16 \\ -3 & -6 & 25 \\ 3 & 8 & -30 \end{bmatrix}$$

Question 2. Let P, Q, R be the columns of the two matrices below. In each case, determine whether O, P, Q, R are coplanar.

$$\begin{bmatrix} 0 & 0 & -1 \\ 1 & 1 & 1 \\ 1 & 1 & 3 \end{bmatrix} \quad \begin{bmatrix} -1 & 3 & 5 \\ 3 & -10 & -17 \\ 2 & -4 & -6 \end{bmatrix}$$

Question 3. Find the first two minors in the cofactor expansion on the 2nd row of the following matrix.

$$\begin{bmatrix} -1 & 2 & 2 & -2 \\ 2 & -5 & -4 & 6 \\ 3 & -9 & -6 & 11 \\ 1 & -1 & 0 & 2 \end{bmatrix}$$

Question 4. Find the second two minors, along the 2nd row, and hence calculate the determinant of the matrix.

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

$$\begin{bmatrix} 1 & 3 & 5 \\ 1 & 1 & 3 \\ -3 & -12 & -18 \end{bmatrix}$$