MAU11S02 Group A2 Quiz 01 3pm 29/1/20

Rules and procedures.
1. Answers must be handed up at the end of the tutorial, no other time. **2.** Attempt 3 questions. Only *your first three answers* will be marked. **3.** Each question carries 20 marks, so the maximum quiz mark is 60. **4.** Marked quizzes will be returned, and answers published, the following week. **5.** If a particular method of solution is stipulated, you get no marks if you don't use it. **6.** The (9) quizzes will contribute 20% to your overall mark. **7.** You are allowed to collaborate and compare answers during the tutorial. **8.** ***Show all work.*** No marks will be given for answers which do not show the calculations.

Question 1. Find the equation of the plane through $P = (2, -1, 3)$, $Q = (2, -2, 6)$, $R = (-3, 4, -7)$. Remember that $\vec{PQ} \times \vec{PR}$ is normal (perpendicular) to the plane.

Question 2. Calculate the adjoint matrix, and hence invert

$$\begin{bmatrix} 9 & 7 \\ 3 & 2 \end{bmatrix}$$

Question 3. Determine whether the four points $P = (2, -1, 3)$, $Q = (2, -2, 6)$, $R = (-3, 4, -7)$, and $S = (3, -1, 2)$ are coplanar; show all work.

Question 4. Calculate the triple product $P \cdot (Q \times R)$,where $P = (2, -1, 3)$, $Q = (2, -2, 6)$, $R = (-3, 4, -7)$

Question 5. Solve by Cramer's Rule (no other method)

$$\begin{aligned} 2x + 2y + -3z &= 3 \\ -1x + -2y + 4z &= -1 \\ 3x + 6y + -7z &= 2 \end{aligned}$$