

MAU11S02 first Monday quiz, week 2
Monday 31/1/22 due 12 noon Thursday 3/2/22

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

$$x + 2y = 7, \quad 2x + 7y = 16$$

Question 2. Calculate the adjoint matrix, and hence invert

$$\begin{bmatrix} 1 & 2 \\ 2 & 7 \end{bmatrix}$$

Question 3. Use Cramer's Rule (no other method) to calculate x , where

$$\begin{aligned} x - 3y + 4z &= 2 \\ x - 3y + 3z &= 1 \\ -x + 5y - 8z &= -4 \end{aligned}$$

Question 4. With the same equations as in Question 3, Calculate y and z .

Question 5. A parallelepiped is a solid figure analogous to a parallelogram. It has six parallel faces (for example, a cube). The volume of a parallelepiped with a corner P and three adjacent corners Q, R, S , is the absolute value of $(Q - P) \cdot ((R - P) \times (S - P))$. Calculate this when $P = (2, 3, 1), Q = (3, 0, -10), R = (5, -7, -35)$, and $S = (5, -8, -36)$.