

MAU11S02 first Friday quiz, week 2

Friday 4/2/22 due 4pm Monday 7/2/22

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 'Friday assignment.'

Question 1. Solve by Cramer's Rule (no other method)

$$2x + 7y = 8; \quad 1x + 8y = 2$$

Question 2.

Calculate the adjoint matrix, and hence invert

$$\begin{bmatrix} 2 & 7 \\ 1 & 8 \end{bmatrix}$$

Question 3. Given the equations below, use Cramer's Rule, no other method, calculate the two determinants needed to compute x , and hence compute x .

$$-1x + 2y + -5z = -9$$

$$1x + 2y + -1z = 3$$

$$3x + 0y + 8z = 22$$

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

Question 5. A parallelopiped is a solid figure analogous to a parallelogram. It has six parallel faces (for example, a cube). The volume of a parallelopiped with a corner P and three adjacent corners Q, R, S , is the absolute value of $(Q - P) \cdot ((R - P) \times (S - P))$.

$P = (3, 1, 4)$, $Q = (1, 3, -2)$, $R = (4, 0, 8)$, $S = (1, 1, 0)$. Calculate the volume.