MAU11S02 Group A1 Quiz 02 9am 6/2/19 ANSWERS

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.

Answer 1. $P \cdot (Q \times R) : (-1,-2,-5) \cdot (-20,24,-6) = 2$ where P, Q, R are the rows of A.

Answer 2.

$$\begin{vmatrix} -1 & -2 & -5 \\ -3 & -7 & -18 \\ 3 & 9 & 26 \end{vmatrix} = 2 \quad \begin{vmatrix} -26 & -2 & -5 \\ -91 & -7 & -18 \\ 123 & 9 & 26 \end{vmatrix} = 6 \quad \begin{vmatrix} -1 & -26 & -5 \\ -3 & -91 & -18 \\ 3 & 123 & 26 \end{vmatrix} = 8 \quad \begin{vmatrix} -1 & -2 & -26 \\ -3 & -7 & -91 \\ 3 & 9 & 123 \end{vmatrix} = 6$$

$$x = \frac{6}{2} = 3 \quad y = \frac{8}{2} = 4 \quad z = \frac{6}{2} = 3$$

Answer 3. The determinant is 2... The adjoint is

$$\begin{bmatrix} -20 & 7 & 1 \\ 24 & -11 & -3 \\ -6 & 3 & 1 \end{bmatrix}$$

Divide by the determinant, 2, to get the inverse

$$A^{-1} = \begin{bmatrix} -10 & 3.5 & 0.5 \\ 12 & -5.5 & -1.5 \\ -3 & 1.5 & 0.5 \end{bmatrix}$$

Answer 4. (1,1) minor: 2; (1,2) minor: -4.

Answer 5. The (1,3) minor is 1 and the (1,4) minor is 2. The determinant is

$$(-3) \times 2 - (-2) \times (-4) + (-2) \times 1 - (-9) \times 2$$
$$-6 - 8 - 2 + 18 = 2.$$