

MAU11S02 Group A2 Quiz 01 3pm 29/1/20 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. **8. *Show all work.*** No marks will be given for answers which do not show the calculations.

Answer 1. $\vec{PQ} = (0, -1, 3), \vec{PR} = (-5, 5, -10), \vec{PQ} \times \vec{PR} = \pm(5, 15, 5)$
 $5x + 15y + 5z = 10$

Answer 2.

$$\left(\frac{-1}{3}\right) \begin{bmatrix} 2 & -7 \\ -3 & 9 \end{bmatrix}$$

Answer 3. Take the cross product $\vec{PQ} \times \vec{PR}$. The plane through P, Q, R (after simplification) has the equation $1x + 3y + 1z = 2$ and R satisfies it; coplanar

Answer 4. $(2, -1, 3) \cdot (-10, -4, 2) = -10$

Answer 5.

$$\begin{vmatrix} 2 & 2 & -3 \\ -1 & -2 & 4 \\ 3 & 6 & -7 \end{vmatrix} = -10 \quad \begin{vmatrix} 3 & 2 & -3 \\ -1 & -2 & 4 \\ 2 & 6 & -7 \end{vmatrix} = -22 \quad \begin{vmatrix} 2 & 3 & -3 \\ -1 & -1 & 4 \\ 3 & 2 & -7 \end{vmatrix} = 10 \quad \begin{vmatrix} 2 & 2 & 3 \\ -1 & -2 & -1 \\ 3 & 6 & 2 \end{vmatrix} = 2$$
$$x = \frac{-22}{-10} = 2.2 \quad y = \frac{10}{-10} = -1 \quad z = \frac{2}{-10} = -0.2$$