

MAU11S02 Group A2 Quiz 05 3pm 26/2/20 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.

$$\begin{aligned}N &= (3, 2, 1) \times (4, 2, 3) = (4, -5, -2) \\(1, 1, 2) &\mapsto Z = (-1/9)(4, -5, -2) \\(1, 1, 2) &\mapsto Z = (-2/9)(4, -5, -2) - (1, 1, 2) = (-17/9, 1/9, -14/9)\end{aligned}$$

Answer 2.

$$\begin{aligned}(1, 1, 2) &\mapsto (1, 1, 2) - (-1/9)(4, -5, -2) = (13/9, 4/9, 16/9) \\(1, 1, 2) &\mapsto (26/9, 8/9, 32/9) - (1, 1, 2) = (17/9, -1/9, 14/9)\end{aligned}$$

Answer 3.

$$\left| \begin{array}{cc} 14 & 19 \\ 19 & 29 \end{array} \right| = 45, \quad \left| \begin{array}{cc} 7 & 19 \\ 12 & 29 \end{array} \right| = -25, \quad \left| \begin{array}{cc} 14 & 7 \\ 19 & 12 \end{array} \right| = 35,$$

$$x = \frac{-5}{9}, \quad y = \frac{7}{9}$$

Answer 4.

$$\begin{bmatrix} -\frac{1}{\sqrt{2}} & -\frac{1}{\sqrt{6}} & -\frac{1}{\sqrt{3}} \\ \frac{1}{\sqrt{2}} & -\frac{1}{\sqrt{6}} & -\frac{1}{\sqrt{3}} \\ 0 & -\frac{2}{\sqrt{6}} & \frac{1}{\sqrt{3}} \end{bmatrix}$$

Answer 5.

$$\begin{bmatrix} \frac{3}{\sqrt{13}} & \frac{12}{\sqrt{637}} & \frac{2}{7} \\ -\frac{2}{\sqrt{13}} & \frac{18}{\sqrt{637}} & \frac{3}{7} \\ 0 & -\frac{13}{\sqrt{637}} & \frac{6}{7} \end{bmatrix}$$