MAU11S02 fifth Monday quiz, week 6
Monday 8/3/21 due 4pm Monday 22/3/21

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. Calculate the result of rotating the point $(1, 0, 0)$ through the angle $120°$ around the axis through $(1, 1, 1)$.

Question 2. Calculate the matrix rotating points through the angle $60°$ around the axis through $(0, 3, 4)$.

Question 3. Calculate the matrix for the perpendicular projection of points onto the plane $3y + 4z = 0$.

Question 4. Calculate the result of rotating the point $(1, 2, 3)$ through $60°$ around the axis OW_3 where $W_3 = (2, 6, 9)$.

Question 5. (i) A' is the matrix for rotating points through angle ϕ around the positive z-axis. Evaluate $\det(A')$. (ii) Explain why every rotation matrix has the same determinant.