MAU11S02 fifth Monday quiz, week 6
Monday 28/2/22 due 12 noon Thursday 3/3/22

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 'Monday assignment.'

Question 1. Calculate an orthonormal basis X_1, X_2, X_3, where X_3 is a multiple of $[2\ 1\ 0]^T$.
Question 2. Use the $SA'S^{-1}$ formula to calculate the matrix for projection onto the plane through O perpendicular to X_3, X_3 as in Question 1.
Question 3. Calculate the matrix for rotating points through 45° around the axis OX_3, X_3 as above.
Question 4. Calculate the matrix for rotating points through 90° around the axis OX_3, X_3 as above.
Question 5. Calculate the linear function best fitting the following data (least squared error estimate). ***You must use the formula given in lectures, and show the calculations.***

$$(-3,3)\ (-2,0)\ (0,3)\ (1,1)$$