# MAU11S02 fifth Friday quiz, week 6
# Friday 4/3/22 due midnight Monday 7/3/22

This is due in Reading Week so the time given matches that of the Monday quiz. But it is not due until midnight.

**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 'Friday assignment.'

**Question 1.** Calculate an orthonormal basis $X_1, X_2, X_3$, where $X_3$ is a multiple of $[3\ 2\ 0]^T$.
**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.***

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