

Quiz 5

This quiz is graded out of 10 marks. No books, calculators, notes or cell phones are allowed. You must show all your work, the correct answer is worth 1 mark the remaining marks are given for the work. If you need more space for your answer use the back of the page.

Question 1. §1.4 #54a (3 marks) A square matrix A is said to be *idempotent* if $A^2 = A$. Show that if A is idempotent, then so is $I - A$.

Question 2. §1.4 #33 (2 marks) Simplify:

$$(AC^{-1})^{-1}(AC^{-1})(AC^{-1})^{-1}AD^{-1}$$

Question 3. §1.5 #32 (5 marks) Write the given matrix as a product of elementary matrices.

$$\begin{bmatrix} 1 & 1 & 0 \\ 1 & 1 & 1 \\ 0 & 1 & 1 \end{bmatrix}$$