

Quiz 4

This quiz is graded out of 12 marks. No books, watches, 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 (3 marks) Solve for the matrix X in the equation below:

$$(3XB)^{-1} + A = X^{-1}$$

Assume that all matrices involved are invertible.

Question 2.² Let $A = \begin{bmatrix} 1 & 3 \\ 0 & 1 \\ -1 & 2 \end{bmatrix}$.

a. (3 marks) Evaluate $A^T A$ and find $(A^T A)^{-1}$.

b. (3 marks) Evaluate AA^T and show that AA^T is not invertible.

Question 3. (3 marks) Prove: If A is an elementary matrix then A^2 is also an elementary matrix.

¹From a John Abbott Final Examination

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