

Quiz 11

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. §4.2 #2d (4 marks) Determine whether the following are subspaces of \mathcal{M}_{nn} .
The set of all symmetric $n \times n$ matrices.

Question 2. §4.2 #10 (4 marks) Express the vector $6 + 11x + 6x^2$ as a linear combination of $\mathbf{p}_1 = 2 + x + 4x^2$, $\mathbf{p}_2 = 1 - x + 3x^2$, $\mathbf{p}_3 = 3 + 2x + 5x^2$.

Question 3. §3.1 #TF (2 marks) Determine whether the statement is true or false, and justify your answer.
Every subset of a vector space V that contains the zero vector in V is a subspace of V .