Name:

MATH 4377/6308 - Advanced linear algebra I - Summer 2024

Quiz 2

(1) [6 Pts] Determine if the following subsets of the vector space of 2×2 matrices with real entries are subspaces. You must justify your answer.

a) $\left\{ \begin{bmatrix} a & b \\ c & -a \end{bmatrix} : a, b, c \in \mathbb{R} \right\}$

b) $\left\{ \begin{bmatrix} a & ab \\ ab & b \end{bmatrix} : a, b \in \mathbb{R} \right\}$

(2) [4 Pts] Mark each statement True or False. If True, justify your answer, if False, show a counter-example.

a) A subset of a linearly dependent sets are is linearly dependent.

b) A subset of a linearly independent sets are is linearly independent.