

Homework

1. Please determine whether the following set is a subspace of \mathbb{R}^2 . If yes, please show it. If no, please explain the reason.

$$S = \left\{ \begin{bmatrix} \omega_1 \\ \omega_2 \end{bmatrix} \in \mathbb{R}^2 \mid \omega_1^2 = \omega_2^2 \right\}$$

2. Please show that the subset $X = \{f(t) : \mathbb{R} \rightarrow \mathbb{R} \mid f(t) = f(-t)\}$ of even functions is a subspace of real-valued functions.