

Name:

1. Answer the following questions “true” or “false.”

(a) The set $R = \{f \in C[-1, 1] \mid f(0) = 1\}$ is a subspace of $C[-1, 1]$.

(b) The vectors $(2, -1, 3)$ and $(2, -1, -3)$ are linearly independent in \mathbb{R}^3 .

(c) The set $S = \text{Span}\{(2, -1, 3), (2, -1, -3)\}$ is a subspace of \mathbb{R}^3 .

2. Let $\mathbf{v}_1 = (1, 1, -1)$ and $\mathbf{v}_2 = (-1, -3, 2)$. Use Gram-Schmidt to find vectors \mathbf{p}_1 and \mathbf{p}_2 such that $\text{Span}\{\mathbf{v}_1, \mathbf{v}_2\} = \text{Span}\{\mathbf{p}_1, \mathbf{p}_2\}$ and $\mathbf{p}_1 \cdot \mathbf{p}_2 = 0$.