

Name:

1. Let  $V = \{p \in P_2 \mid p(1) = 1\}$ , where  $P_2$  is the set of polynomials of degree 2 or less.

(a) Is  $V$  closed under addition?

(b) Is  $V$  closed under scalar multiplication?

(c) Is  $V$  a subspace of  $P_2$ ?

2. Let  $M_n$  be the set of all  $n \times n$  matrices, where  $n \geq 2$ . Let  $T : M_n \rightarrow \mathbb{R}$  be given by  $T(A) = \det A$ . Is  $T$  a linear transformation? Why or why not?