

Last name \_\_\_\_\_

First name \_\_\_\_\_

**LARSON—MATH 310—WORKSHEET 13**  
**Subspaces of Vector Spaces.**

Let  $W = \{ax + b \mid a, b \in \mathbb{R}\}$

1. What is  $\mathcal{P}_2$ ?
  
  
  
  
  
  
  
  
  
  
2. Is  $\mathcal{P}_2$  a vector space?
  
  
  
  
  
  
  
  
  
  
3. Is  $W \subseteq \mathcal{P}_2$ ?
  
  
  
  
  
  
  
  
  
  
4. Check that  $W$  is closed with respect to addition.
  
  
  
  
  
  
  
  
  
  
5. Check that  $W$  is closed with respect to scalar multiplication.
  
  
  
  
  
  
  
  
  
  
6. Is  $W$  a subspace of  $\mathcal{P}_2$ ?