Read Section 6.11 and answer the following questions.

1. How do we define a rotation on a 1-dimensional inner product space?

2. Let V be a nonzero finite-dimensional real inner product space. Then there exists a collection of pairwise orthogonal T-invariant subspaces $\{W_1, \ldots, W_m\}$ such that

$$V = W_1 \oplus \cdots \oplus W_m.$$

   (a) What can you say about the dimension of each W_i?

   (b) If you know T_{W_i} is a reflection, what can you say about the dimension of W_i?

3. Prove that if T is a reflection on a 2- dimensional inner product space then $T^2 = I$.