MAKE UP for Parallelization Problem, HW 3.

The quaternions are a real 4-dimensional algebra with basis $1, i, j, k$. Look up the definition of the quaternions. And look up the definition of quaternionic conjugation $q \mapsto q^*$.

b) Prove that the group of unit quaternions: $\{q : qq^* = 1\}$ forms a Lie group under quaternionic multiplication and that as a manifold it is diffeomorphic to the 3-sphere S^3.

c) Write down an explicit parallelization of S^3, the group of unit quaternions.