(1) Recall that a subgroup H in a group G is called *normal* if $ghg^{-1} \in H$ for any $h \in H$ and $g \in G$.

Let $SO(3)$ be the group of orthogonal 3×3 matrices with determinant 1. Suppose $H \trianglelefteq SO(3)$ is a finite normal subgroup.

Prove that H is trivial i.e. $H = \{\mathrm{Id}\}$.