1. Compute $H_i(S^n \setminus X)$ where $X$ is a subspace of $S^n$ homeomorphic to $S^k \vee S^\ell$.

2. Let $M$ be a closed orientable surface embedded in $\mathbb{R}^3$ in such a way that reflection across a plane $P$ defines a homeomorphism $r : M \to M$ fixing $M \cap P$, a collection of circles. Is it possible to homotope $r$ to have no fixed points?