Oral-Example-Geometry-Topology

1 Group

1. Show that $S^2 \times S^2$ and the connected sum $\mathbb{CP}^2 \sharp \mathbb{CP}^2$ are not homotopic equivalent.
2. Show that any closed surface has a closed geodesic.
3. Compute the Euler number of a smooth degree d hypersurface in $\mathbb{CP}^3$.