HOMEWORK 10

(1) Using the long exact sequence of fibration, describe $\pi_k(\mathbb{R}P^n)$ by $\pi_k(S^n)$.
(2) Compute the fundamental group of double torus.
(3) Let X be a Klein bottle with two holes. Compute its fundamental group
(4) Using the Seifert–Van Kampen theorem compute the fundamental group of $\mathbb{R}^3 \setminus S^1$.