

HOMework #2

1. Show that if $S^m \hookrightarrow S^n \rightarrow S^l$ is a fibration, then $n = m + l$ and $l = m + 1$.
2. Compute the cohomology groups of $SO(4)$.
3. Compute the cohomology of the space of continuous maps $S^1 \rightarrow S^3$.
4. Find the ring structure on $H^*(\Omega S^n)$.
5. Find the ring structure on $H^*(\Omega \mathbb{C}P^n)$.
6. Find the ring structure on $H^*(K(\mathbb{Z}, n); \mathbb{Q})$.
7. Find the ring structure on $H^*(SU(n))$ and $H^*(U(n))$.