

CHAPTER 1

K-Theory as a Cohomology Theory

IMPORTANT RESULTS TO BUILD TOWARDS. WHICH OF THESE DO I NEED FOR THE NEXT CHAPTER VS. HAVE I ALREADY USED?

- External Product Definition
- (Theorem 2.2) The external product $\mu : K(X) \otimes \mathbb{Z}[H]/(H-1)^2 \rightarrow K(X \times S^2)$ is an isomorphism of rings.
- (Corollary 2.3) $\mathbb{Z}[H]/(H-1)^2 \rightarrow K(S^2)$ is an isomorphism of rings.
- (Proposition 2.9) X compact Hausdorff and $A \subset X$ closed subspace, then inclusion and quotient maps $A \rightarrow X \rightarrow X/A$ induces exact homomorphism sequence of rings $\tilde{K}(X/A) \rightarrow \tilde{K}(X) \rightarrow \tilde{K}(A)$.
- (Lemma 2.10) A contractible implies $q : X \rightarrow X/A$ induces bijection $q^* : \text{Vect}^n(X/A) \rightarrow \text{Vect}^n(X)$.
- (Bottom of pg. 53) $\tilde{K}(X) \rightarrow \tilde{K}(A) \oplus \tilde{K}(B)$ is an isomorphism
- (Top of pg. 54) $\tilde{K}(S(X \vee Y)) \approx \tilde{K}(SX) \oplus \tilde{K}(SY)$.
- (Theorem 2.11: Bott periodicity) $\tilde{K}(X) \approx \tilde{K}(S^2 X)$