

Exercises on standard conjectures and correspondences

- (1) Let $Z = i_* Z'$ for some $i: Y \times X \hookrightarrow X \times X$
Prove $[Z]_* = [Z']_* \circ i^*$, $[Z]^* = i_* \circ [Z']^*$
- (2) Prove that if X verifies Lefschetz in $\text{deg} \leq k-2$
then $H^k(X) \rightarrow \bigoplus_i H^{k-2i}(X)_{\text{prim}}$ is algebraic.
Use this to construct S .
- (3) Prove that $\text{Hom} = \text{Num} \Rightarrow \text{Lefschetz}$.