The conjecture:
On a projective non-singular algebraic variety over $\mathbb{C}$, any Hodge class is a rational linear combination of classes $c_l(Z)$ of algebraic cycles.

1.1 Definition: Let $(A_n)_{n \in \mathbb{Z}}$ be a sequence of $\mathbb{R}$-modules and $(d_n)_{n \in \mathbb{Z}}$ a sequence of homomorphisms $d_n : A_n \to A_{n-1}$ such that $d_n \circ d_{n+1} = 0$. Then $(A_*, d_*)$ is called a [co]homology class in $A^*$.

Let $X$ be a projective non-singular algebraic variety over $\mathbb{C}$. The definition of a Hodge class $\omega$ on $X$ is given by

$$\omega \in H^p_d(X) \mapsto (c \mapsto \int_c \omega) \in (H^p_{sing}(X, \mathbb{R}) \cong H^*_{sing}(X, \mathbb{R})$$

where $d^p : \Omega^p(X) \to \Omega^{p+1}(X)$ is the exterior derivative.

The $k$-th de-Rham-coboundary $H^k_{dR}(X)$ is the $k$-th cohomology group of the de-Rham-complex.

4.2 Theorem: (de Rham, 1931)
The de-Rham-coboundary $H^*_d(X)$ of a smooth manifold $X$ is isomorphic to the singular cohomology in $R$, i.e. $H^*_d(X) \cong H^*_{sing}(X, \mathbb{R})$.

For $c \in H^p_{sing}(X)$ the isomorphism is given by

$$\omega \in H^p_d(X) \mapsto (c \mapsto \int_c \omega) \in (H^p_{sing}(X, \mathbb{R}) \cong H^*_d(X, \mathbb{R})$$