points; thus we may define the degree of a variety to be the number of points of intersections of V with a generic linear subspace of complementary dimension. On the other hand, if ω is the standard Kähler form on $\mathbb{P}^n$,

$$\int_V \omega^k = \text{degree}(V) \cdot \int_{\mathbb{P}^k} \omega^k = \text{degree}(V),$$

so we may define the degree of V to be simply its volume divided by $k!$. (This is sometimes called the Wirtinger theorem.)

See p31,

$$\text{Vol}(V) = \frac{1}{k!} \int_V \omega^k$$

$$\text{vol}(\mathbb{P}^k) = \frac{1}{k!} \int_{\mathbb{P}^k} \omega^k$$

$\Rightarrow$ This ω is not the standard Kähler form.

$$\Rightarrow \frac{\text{Vol}(V)}{\text{Vol}(\mathbb{P}^k)} = \left(\int_V \omega^k\right) \Big/ \left(\int_{\mathbb{P}^k} \omega^k\right) \overset{?}{=} \deg(V)$$

See p47 (Bott, Differential Forms in Algebraic Topology).
Let $f: M \longrightarrow N$ be a differentiable map.

$\Rightarrow$ $H^n_{DR}(N) \xrightarrow{f^*} H^n_{DR}(M)$ induces a map f^*.

If ω is a generator of $H^n_{DR}(N)$,

$\int_N \omega = 1$. $\Rightarrow$ $f^*\omega \in H^n_{DR}(M)$ and

$\int_M f^*\omega = \deg f$.