1 Notation

In Class	Textbook	Description
$\mathcal{O}(X)$	$\Gamma(X,k)$	regular functions on X rational function defined evertwhere on X
if $U \subset X$ is open we sometimes will write $\mathcal{O}_X(U)$ instead of $\mathcal{O}(U)$	$\Gamma(U,\mathcal{O}_X)$	regular function on an open $U \subset X$
$\mathcal{O}_p(X)$ we will sometimes write $\mathcal{O}_{X,p}$ or simiply $\mathcal{O}_p$ instead of $\mathcal{O}_p(X)$	$\mathcal{O}_p(X)$	rational functions defined at p
$z \in \mathcal{O}_X(U), p \in U$ $z(p)$	$z(p)$	value of the function z at p
$x_{n+1}^{\deg(f)} f\left(\frac{x_1}{x_{n+1}}, ..., \frac{x_n}{x_{n+1}}\right)$	f^*	homogenization of f
$F(x_1, ..., x_n, 1)$	F_*	dehomoginization of F
$R = k[x_0, ..., x_n] = \oplus_{\geq n} R_n$ $F \in R_n$	??	homogeneous poly of degree n =form of degree n
$p \in \mathbb{P}^n(k), L \in R_1, F \in R_n, p \notin \mathbb{V}(L)$ $F_L = \frac{F}{L^{\deg(F)}} \in \mathcal{O}_p(\mathbb{P}^n(k))$	$F_* \in \mathcal{O}_p(\mathbb{P}^n(k))$	localization of F at p
$\mathrm{mul}_p(F)$	$m_p(F)$	multiplicity of p in F
$\Gamma(X,*)$	$\Gamma_h(X)$	homogeneous coordinate ring or a projective algebraic set