n self-intersection. $\Rightarrow$ Since $\chi(X_p) = 2$, $\chi(U) = 4+\mu-n$. Note that $\{X_p\}_{p\in l_x}$ is a pencil in U. $\Rightarrow$ X_p changes continuously as p varies in l_x. $\Rightarrow$ But we know that $\{X_p\}_{p\in l_x}$ has no base point. In particular, by assuming $p_0 \neq 0$, $(X_1 + p_1 X_3 + X_2 + p_1 X_4 = 0) \cap (X_1 + p_1 X_3 = 0) = \sigma(p)$, $(X_1 + p_1' X_3 + X_2 + p_1' X_4 = 0) \cap (X_1 + p_1' X_3 = 0) = \sigma(p')$ $\Rightarrow$ $\sigma(p) \cap \sigma(p') = \phi$, for we get $(p_1 - p_1')X_3 + (p_1 - p_1')X_4 = 0$, since $p_1 \neq p_1'$. $X_3 + X_4 = 0$ $\Rightarrow$ $X_1 = X_2 = 0$. $\Rightarrow$ The self-intersection of a generic X_p is $\#((\sigma(p) \cap F) \cap (\sigma(p') \cap F)) = 0$, $p, p' \in \{[*,*,0,0]\}$ see note P906 for notations. Thus $n=0$ $\Rightarrow$ $\chi(U) = 4+\mu$.

But U, being the smooth intersection of two quadrics in $\mathbb{P}^4$, is biholomorphic to $\mathbb{P}^2$ blown up five times (Section 4, Chapter 4) and so has Euler characteristic 8. Consequently

$$\deg S = \mu = 4.$$

Pf. $U = T_x(G) \cap X \subset T_x(G) = \mathbb{P}^4$ and $T_x(G) \cap X = T_x(G) \cap F \cap G = (T_x(G) \cap G) \cap (T_x(G) \cap F)$ $\Rightarrow$ Since $T_xG \cap G$ & $T_xG \cap F$ are quadrics in $T_xG = \mathbb{P}^4$, U is the smooth intersection of two quadrics in $\mathbb{P}^4$.
$\Rightarrow$ U is $\mathbb{P}^2$ blown up in five distinct points by the result on P550. $\Rightarrow$ $H_0(U) = H_4(U) = \mathbb{Z}$ and $H_2(U) =$