$x \in f^{-1}(U \cap V) \Rightarrow f(x) \in U \cap V \Rightarrow g_i \circ f(x) = 0$ //

If $x \in \{g_i \circ f = 0\}$ & $x \in f^{-1}(V)$ $g_i \circ f(x) = 0$

$\Rightarrow f(x) \in U$, and $f(x) \in V$

$\Rightarrow f(x) \in U \cap V \Rightarrow x \in f^{-1}(U \cap V)$. //

끝

To see what the image S of f is, we observe first that f is well-defined on the blow-up $\widetilde{\mathbb{P}}^2$ of $\mathbb{P}^2$ at the points p_1, p_2, p_3 of Γ_0. (See Figures 2 and 3.) If E_i is the exceptional divisor in $\widetilde{\mathbb{P}}^2$ over p_i, then the proper transform $\tilde{D}$ of a generic element $D \in |\mathcal{J}_{\Gamma_0}(4)|$ is given by

$$\tilde{D} \sim \pi^* D - 2E_1 - 2E_2 - 2E_3.$$

The degree of the image $S = f(\widetilde{\mathbb{P}}^2)$ in $\mathbb{P}^3$ is thus

$$\begin{aligned}\tilde{D} \cdot \tilde{D} &= D \cdot D - 4E_1 \cdot E_1 - 4E_2 \cdot E_2 - 4E_3 \cdot E_3 \\ &= 16 - 4 - 4 - 4 \\ &= 4 .\end{aligned}$$

⊛ $f : \mathbb{P}^2 \longrightarrow \mathbb{P}^3$ is not well-defined on all of $\mathbb{P}^2$ since $(\sigma_0 S_1)(p_i) = (\sigma_0 S_2)(p_i) = (\sigma_0 S_3)(p_i) = \tau(p_i) = 0$.

Refer to P 490 ~ P492.

Define $\tilde{f} : \widetilde{\mathbb{P}}^2 \longrightarrow \mathbb{P}^3$ by

$x \longmapsto f \circ \pi(x)$

where $\pi : \widetilde{\mathbb{P}}^2 \longrightarrow \mathbb{P}^2$.

For each point p_i, we have the following