If f & f' satisfy the three equations, then $f+f'$ satisfies. Clearly αf satisfies for $\alpha \in \mathbb{C}$. Here we have a parametric representation of C near each point p_ν, since $\frac{\partial f}{\partial y} \neq 0$, so $\mathbb{C}^2 \xrightarrow{F} \mathbb{C}^2$ $J(F) \neq 0$ at p_ν.

$$(x, y) \longmapsto (x, f)$$

$$\Rightarrow G(x, f) = (x, y) \quad \Rightarrow \quad G(x, 0) = (x, y) = (x, g(x)).$$

Since finding a curve C of degree n and with prescribed second-order behavior at points p_ν on the line $\{x=0\}$ is equivalent to finding a point satisfying ① ② ③ at each point p_ν, and each ①, ②, ③ at each p_ν represents three linear relations on $\mathbb{P}^n(V) = \mathbb{P}^{3n-1}$, we have to find a point in $\mathbb{P}^{3n-1}$ satisfying the $3n$ linear conditions. So we have $3n$ linear conditions on $\mathbb{P}^{3n-1}$. In general, $3n$ linear conditions determine a point on $\mathbb{P}^{3n-1}$, or $\exists$ no point. I don't understand well enough on the sufficiency of Reiss relation. Is that the meaning that $3n$ linear conditions plus Reiss relation are enough for determining a point in $\mathbb{C}^{3n} \longrightarrow \mathbb{P}^{3n-1}$. Let's see what comes next. ⅃

Finally, we wish to point out that the residue theorem from Section 1 applies to configurations of points on general algebraic surfaces, not just $\mathbb{P}^2$. More precisely, suppose that L, L' are holomorphic line bundles over a surface S and $C \in |L|$, $C' \in |L'|$ are curves meeting transversely at $d = L \cdot L'$ points. Then we have the

┌ $d = L \cdot L'$ = intersection number ⅃