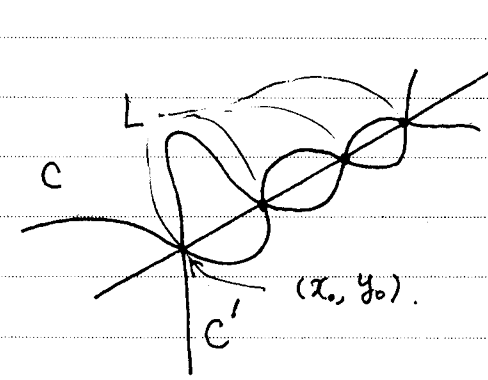

$\deg \Gamma = 4$

NONSENSE SEE P 691 ~ 692 NOTE

At (x_0, y_0), assume $f(x, k_1(x)) = 0$ locally.

$\Rightarrow \left(\frac{\partial f}{\partial x}, \frac{\partial f}{\partial y}\right) \cdot (1, k_1'(x)) = 0$

Similarly, assume $g(x, k_2(x)) = 0$ locally

$\Rightarrow \left(\frac{\partial g}{\partial x}, \frac{\partial g}{\partial y}\right) \cdot (1, k_2'(x)) = 0$.

$\Rightarrow$ Since $k_1'(x_0) \neq k_2'(x_0)$, $\left(\frac{\partial f}{\partial x}, \frac{\partial f}{\partial y}\right) = A = (a_1, a_2)$

& $\left(\frac{\partial g}{\partial x}, \frac{\partial g}{\partial y}\right) = B = (b_1, b_2)$ are linearly independent.

Consider $f(x, k(x)) + \gamma g(x, k(x)) = 0$.

$\Rightarrow \left(\frac{\partial f}{\partial x}, \frac{\partial f}{\partial y}\right)(1, k'(x)) + \gamma \left(\frac{\partial g}{\partial x}, \frac{\partial g}{\partial y}\right) \cdot (1, k'(x)) = 0$

$\Rightarrow$

$(a_1, a_2) \cdot (1, k'(x_0)) + \gamma (b_1, b_2) \cdot (1, k'(x_0)) = 0$

$\Rightarrow a_1 + a_2 k'(x_0) + \gamma (b_1 + b_2 k'(x_0)) = 0$

$\Rightarrow$
$$\gamma = -\frac{a_1 + a_2 k'(x_0)}{b_1 + b_2 k'(x_0)}$$

If $b_1 + b_2 k'(x_0) = 0$, consider $\gamma f(x, k(x)) + g(x, k(x)) = 0$.