$$\Rightarrow \quad \omega = -2\, R\left(\frac{dx\wedge dy}{f(x,y)}\right), \quad \text{i.e}$$

$$\omega = \psi^{*}\left(-2\, R\left(dx\wedge dy \big/ f(x,y)\right)\right).$$

$$\begin{array}{ccc} C \subset \mathbb{P}^2 & \xrightarrow{\ \mu\ } & \mathbb{C}/\Lambda \\ \psi & & \\ p & \longmapsto & \displaystyle\int_{p_0}^{p} \frac{dx}{y}. \end{array}$$

$$\mu(p) = \int_{p_0}^{p} \frac{dx}{y} \quad (\text{mod periods})$$

Let $p_0 = [0,0,1]$.

$$\mu([1, \wp(z), \wp'(z)]) = \int_{[0,0,1]}^{[1,\wp(z),\wp'(z)]} \frac{dx}{y}$$

$$= \int_{\psi^{-1}([0,0,1])}^{\psi^{-1}([1,\wp(z),\wp'(z)])} \psi^{*}\left(\frac{dx}{y}\right) \equiv \int_{0}^{z} dz = z \quad (\text{mod}$$

periods), where $\psi^{-1}([0,0,1]) = 0$.

$$0 \longmapsto [1, \wp(0), \wp'(0)].$$

$\Rightarrow$ Since $\wp$ & $\wp'$ have double triple poles respectively, $[z^3, az, b]_{\text{at } z=0} = [0,0,1]$.

$\Rightarrow$ $\mu\circ\psi$ = identity on $\mathbb{C}/\Lambda$, and similarly $\psi\circ\mu$ = identity on C. //

* 수정된 바꾸었음

If $p_1, p_2, p_3 \in C$ and $z_1, z_2, z_3 \in \mathbb{C}$ are the corresponding points in $\mathbb{C}/\Lambda$, then Abel's theorem is equivalent to the assertion

$$z_1 + z_2 + z_3 \equiv 0 \ (\Lambda) \Leftrightarrow (3p_0 - p_1 - p_2 - p_3) \sim 0,$$

i.e., there exists a meromorphic function $f(z)$ on C with a