

Suppose $P_i - P_0 \sim P_j - P_0 \Rightarrow P_i \sim P_j \Rightarrow P_i + P_0 \sim P_j + P_0 \Rightarrow$ Contradiction to the arguments above.

(Note: $f: B \rightarrow \mathbb{P}^1$ with $f(P_i) = \infty$, $f(P_j) = 0$ is $2-1 \Rightarrow (f=0) = 2P_j - 2P_0$)

\Rightarrow The μ_i 's are distinct. $\Rightarrow \# \mu_i$'s = 6

$\# \mu_{ij}$'s = $5C_2 = 10$

□

The group law on the points μ_i, μ_{ij} is easily written down: clearly

$$\mu_i + \mu_j = \mu_{ij},$$

and since the meromorphic function

$$f(x, y) = \frac{y}{(x - \lambda_0)^3}$$

on B has divisor

$$(f) = \sum_{i=0}^5 P_i - 6P_0.$$

We see that

$$\mu_i + \mu_{jk} \sim (P_i + P_j + P_k - 3P_0)$$

$$\sim (-P_k - P_m + 2P_0) \sim -\mu_{km} = \mu_{km}$$

for i, j, k, l, m distinct; and

$$\mu_{ij} + \mu_{kl} \sim (P_i + P_j + P_k + P_l - 4P_0)$$

$$\sim (-P_m + P_0) \sim -\mu_m = \mu_m.$$

By p254, $y^2 = \prod_{i=0}^5 (x - \lambda_i)$ is defined on $B - 3$ two points, and is extended to B . \Rightarrow Thus