

(6)

$$= \alpha - \beta = \alpha - \beta$$

$$-2 \equiv -3$$

$$\alpha + \beta + \alpha - \beta = 2\alpha \Rightarrow \alpha \in \mathbb{Z}_5(\alpha + \beta)$$

$$\beta \in \mathbb{Z}_5(\alpha + \beta)$$

$$\Rightarrow \mathbb{Z}_5(\alpha, \beta) = \mathbb{Z}_5(\alpha + \beta)$$

$\mathbb{Z}_5(\alpha, \beta)$  a simple extn.

Alternatively (only now can I see it)

$$(\alpha + \beta)^3 + (\alpha + \beta) = 2\beta \Rightarrow \beta \in \mathbb{Z}_5(\alpha + \beta)$$

$$\Rightarrow \mathbb{Z}_5(\alpha, \beta) = \mathbb{Z}_5(\alpha + \beta) \quad \Rightarrow \alpha = \alpha + \beta - \beta \in \mathbb{Z}_5(\alpha + \beta)$$

$$\Rightarrow \mathbb{Z}_5(\alpha, \beta) \text{ a simple extension.}$$