1. Let $F \subseteq K$ be a field extension. Why is it true that $K \cong F$ iff [K:F] = 1?

2. Let $F \subseteq K$ be a field extension and $\alpha, \beta \in K$ algebraic over F. Recall how we constructed $F(\alpha)$. How would we then go about constructing $(F(\alpha))(\beta)$?

3. What is $[\mathbb{Q}(\sqrt{2}, i), \mathbb{Q}]$? What is the degree of i over $\mathbb{Q}(\sqrt{2})$?