QUIZ 1

ALGEBRA 2, 2024

Name:

(1) Let $\alpha, \beta \in \mathbf{C}$ be algebraic over $\mathbf{Q}$.

- If α and β have the same minimal polynomial, then $\mathbf{Q}[\alpha] = \mathbf{Q}[\beta]$ as subsets of $\mathbf{C}$.

☐ True ☐ False .

- If $\mathbf{Q}[\alpha] = \mathbf{Q}[\beta]$, then α and β have the same minimal polynomial.

☐ True ☐ False .

(2) Does $\sqrt{2}$ lie in $\mathbf{Q}[i + \sqrt{2}]$?

☐ Yes, $\sqrt{2} \in \mathbf{Q}[i + \sqrt{2}]$. ☐ No, $\sqrt{2} \notin \mathbf{Q}[i + \sqrt{2}]$.