QUIZ 1

ALGEBRA 2, 2024

Name:

(1) Let $\alpha \in \mathbf{C}$. Consider the statements:

    (a): α is transcendental over $\mathbf{Q}$.

    (b): α^2 is transcendental over $\mathbf{Q}$.

    True or false:

    $\square$**:** (a) implies (b),

    $\square$**:** (b) implies (a),

    $\square$**:** (a) and (b) are equivalent.

(2) What is the degree of $\sqrt{2} + i$ over $\mathbf{Q}[\sqrt{2}]$?