PROBLEM OF THE MONTH

DEPARTMENT OF MATHEMTICS
ELMHURST UNIVERSITY
SEPTEMBER 2025

Let $\alpha = \sqrt{2} + \sqrt{3}$.

(1) Show that there exists a polynomial $P(x)$ with integer coefficients such that $P(\alpha) = 0$.

(2) Show that α is not a rational number.

Please submit your solution to `tung.nguyen@elmhurst.edu`