




Problems – 07/28/2025

The solutions to the problems below
will be published on Thursday 07/31/2025

-  **Problem 1.** In trapezoid $ABCD$, points M and N are the midpoints of the legs BC and DA , respectively. Compute the ratio:

$$\frac{A_{ABM} + A_{CDN}}{A_{ABCD}}.$$

-  **Problem 2.** Given that $a + b + c = 0$ and $a, b, c \in \mathbb{Z}$, prove that $32(a^4 + b^4 + c^4)$ is a square of an integer.

Good luck!

We encourage you to submit your solutions via the website:
<https://mathlovers.eu/submit-solution/>