



## Problems – 07/24/2025

The solutions to the problems below  
will be published on Sunday 07/27/2025

- Problem 1.** Vertex  $A$  of parallelogram  $ABCD$  is connected by segments to the midpoints  $E$  and  $F$  of sides  $BC$  and  $CD$ , respectively. These segments intersect the diagonal  $BD$  at points  $M$  and  $N$ . Prove that points  $M$  and  $N$  divide  $BD$  into congruent segments.
- Problem 2.** Does there exist a triangle in which two of the sides have lengths 1 and 4, and two of the altitudes have lengths 3 and 4? Justify your answer.

*Good luck!*

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