Problems 12/15/2025

The solutions to the following problems will be published on Thursday 12/18/2025.

MathLovers

Problem 1. Determine all functions $f : \mathbb{R} \to \mathbb{R}$ satisfying the equation

$$2f(x) + f(1 - x) = 3x$$

for each $x \in \mathbb{R}$.

Problem 2. Let a, b, c be the lengths of the sides of a triangle, p is half its perimeter, and r is the length of the radius of the circle inscribed in this triangle. Prove that

$$\frac{1}{(p - a)^2} + \frac{1}{(p - b)^2} + \frac{1}{(p - c)^2} \geqslant \frac{1}{r^2}$$

Good luck!

We encourage you to submit your solutions via
https://mathlovers.eu/submit-solution/!