



MathLovers

Problems 12/08/2025

The solutions to the problems below
will be published on Thursday, 12/11/2025

Problem 1. Solve in positive real numbers x, y, z the system of equations:

$$\begin{cases} xy + xy^2z = 2 \\ yz + xyz^2 = 2 \\ zx + x^2yz = 2 \end{cases}$$

Problem 2. Find all polynomials $P(x)$ with integer coefficients such that for every positive integer n we have $P(n) > 0$ and $P(P(n) + n)$ is a prime number.

Good luck!

We encourage you to submit your solutions via the website

[https://mathlovers.eu/submit-solution/!](https://mathlovers.eu/submit-solution/)