



MathLovers

Problems 22.09.2025

Solutions to the problems below
will be published on Thursday 25.09.2025

Problem 1. During a very boring lesson at school, Marek counted the hairs of three classmates sitting in front of him. He realized that the number of hairs was exactly the same as the number of words (meaningful or not) that can be formed by rearranging the letters of the word OWŁOSIENIE. How many hairs does each of Marek's classmates have on average?

Problem 2. Let a, b be relatively prime positive integers. We call a pair of positive integers $c \neq a, d \neq b$ *humanistic*, if the following holds

$$a^2 + b^2 = ac + bd.$$

Prove that for every humanistic pair the inequality $a + b < c + d$ holds.

Good luck!

We encourage you to submit your solutions via the website
[https://mathlovers.eu/submit-solution/!](https://mathlovers.eu/submit-solution/)