MathLovers

Problems from 10/09/2025

The solutions to the following problems will be published on Sunday 10/12/2025

Problem 1. Prove that

$$\frac{1}{\sqrt[3]{1}} + \frac{1}{\sqrt[3]{2}} + \ldots + \frac{1}{\sqrt[3]{2025}} > 200.$$

Problem 2. Let σ be a composite number. Suppose that the equation

$$\frac{1}{a} + \frac{1}{b} = \frac{1}{\sigma}$$

is satisfied for some positive integers a, b. Prove that there exist three distinct pairs of positive integers (a_1, b_1), (a_2, b_2), and (a_3, b_3), all different from (a, b), which also satisfy this equation.

Good luck!

We encourage you to submit your solutions through our website:
https://mathlovers.eu/submit-solution/