

Problem 6 (due on Monday, November 18).

For real numbers a, b, c consider the system of equations $\begin{cases} x^2 + 2yz = a, \\ y^2 + 2xz = b, \\ z^2 + 2xy = c. \end{cases}$ Prove that this system has at most one solution in real numbers x, y, z such that $x \geq y \geq z$ and $x + y + z \geq 0$. Prove that such a solution exists if and only if $a + b + c \geq 0$ and $b = \min(a, b, c)$. Here $\min(a, b, c)$ denotes the smallest number among a, b, c .

No solution were submitted. For a detailed solution see the following link [Solution](#).

From:

<http://www2.math.binghamton.edu/> - **Department of Mathematics and Statistics,
Binghamton University**

Permanent link:

<http://www2.math.binghamton.edu/p/pow/problem6f24>

Last update: **2024/11/21 09:18**

