RQC Russian Quantum Center · HIGHLAND GOLD · NQL National Quantum Laboratory

LPR Cup 2023

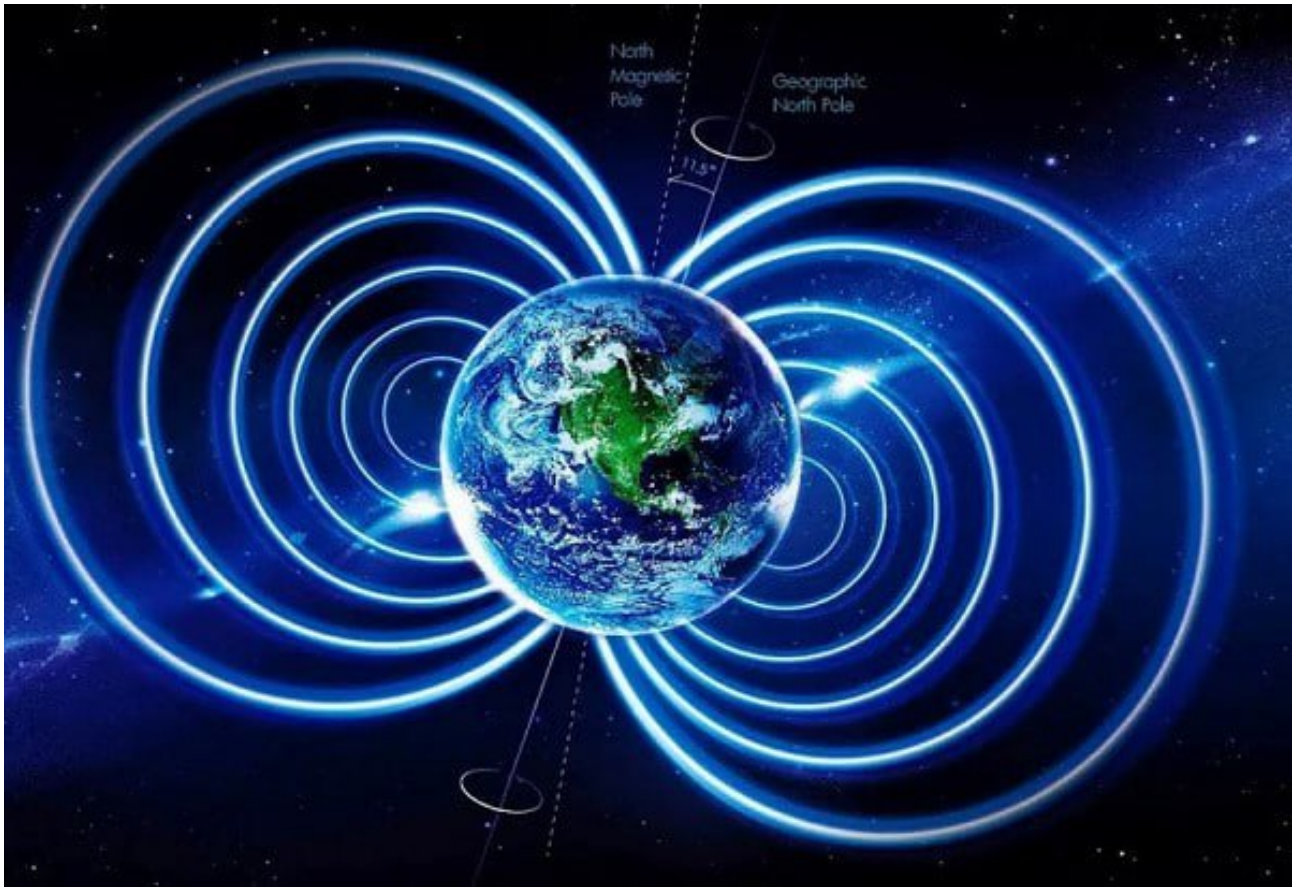
9.s14.e01

Hint 1

Problem. Is it true that for any whole number $n > 2$ the equation $a^n + b^n = c^n$ doesn't have any integer solutions?

Solution. Consider an equation $a^2+b^2 = c^2$. The equation has infinitely many integer solutions, for example (3, 4, 5); (5, 12, 13). Let's increase the power by one. Obviously, these triplets are not solutions now. Therefore, the equation has no solutions. Likewise, for $n > 3$ there are no integer solutions.

Grade. Part ($k = (5^2 - 4^2)/10$).

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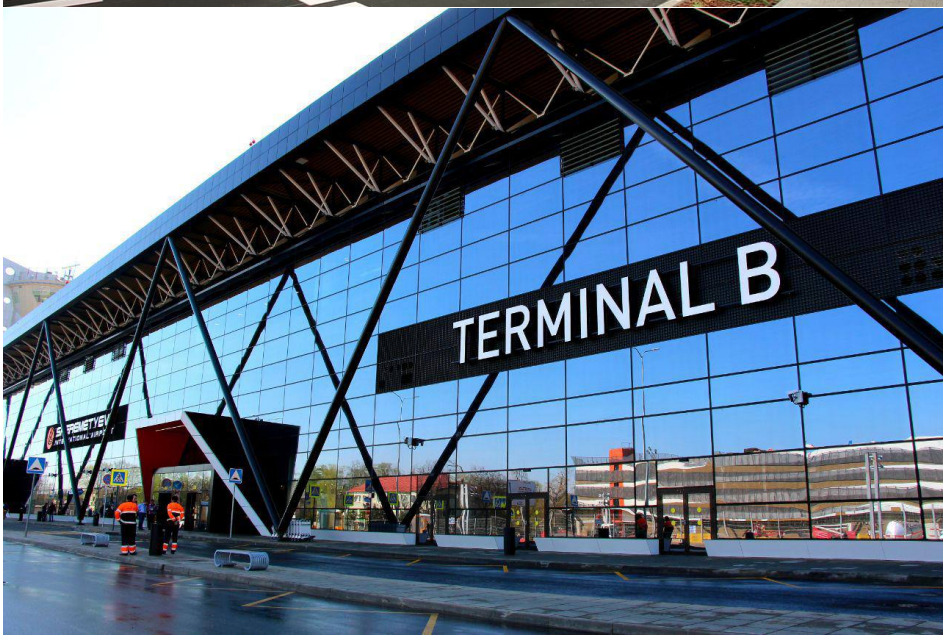
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