

Problem 6 (due Monday, April 28)

| Prove that if a, b, c are positive numbers such that $abc=1$ then

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$$\left[\frac{1}{\sqrt{1+2024a}} + \frac{1}{\sqrt{1+2024b}} + \frac{1}{\sqrt{1+2024c}} \right] \geq \frac{1}{15}.$$

We received a solution from Emily (Qingyue) Liu, Josiah Moltz, and Andrew Zhou (a high school senior from Cincinnati, OH). Andrew's solution is based on a certain general result in elementary inequalities called the N-1 Equal Value Principle. The solution from Josiah Moltz is perhaps the simplest of all the solutions we have. For details and other solutions see the following link [Solution](#).

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