Complex Numbers

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The Riemann Hypothesis

Prove or disprove the following statement:

The nontrivial zeros of $\zeta(s)$ have real part equal to $\frac{1}{2}$.

Where:

$$\zeta(s) = \sum_{n=1}^{\infty} \frac{1}{n^s} \{s \in \mathbb{C} \mid \mathrm{Re}(s) > 1\}$$

$$\zeta(s) = 2^s \pi^{s-1} \sin\left(\frac{\pi s}{2}\right) \Gamma(1-s)\zeta(1-s) \{s \in \mathbb{C} \mid s \neq 1\}$$

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