AN ATTEMPT TO PROVE THE RIEMANN HYPOTHESIS SIMPLY

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Abstract. This work says that Riemann Hypothesis is true.
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There is a vivid interest in the Riemann Hypothesis, and there are no reasons to doubt Riemann Hypothesis. [1] Still, despite many attempts to prove the long-standing Millennium Prize problem, those have yet to be published in a reputable journal.

It is known [2] that the zeroes \( x = x_0, \ y = y_0 \) of the zeta function, \( \zeta(x_0 + i y_0) = 0 \), satisfy \( \zeta(x_0 + i y_0) = \zeta(1 - x_0 + i y_0) \) and \( \xi(x_0 + i y_0) = \xi(1 - x_0 + i y_0) \) because zeroes of the Landau’s xi function and zeroes of the zeta function are the same in the critical strip. [3]

For a general values of \( x, y \), the differences are \( \Delta = \zeta(x + i y) - \zeta(1 - x + i y) \) and \( \delta = \xi(x + i y) - \xi(1 - x + i y) \). Hereby, it is necessary for \( \zeta \) function to be zero if both \( \Delta \) and \( \delta \) vanish. I can write then \( \zeta = \zeta(x, y, \Delta, \delta) \). And equation \( \zeta(1/2, y_0, 0, 0) = 0 \) produces all the zeroes on the critical line because the differences surely vanish if \( x = 1/2 \). So, \( \zeta(1/2 + i y_0) = \xi(1/2 + i y_0) = 0 \).

References
[1] David W. Farmer, “Currently there are no reasons to doubt the Riemann Hypothesis,” arXiv:2211.11671 [math.NT], 2022AD.

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