

# How to verify the Riemann hypothesis *for the first 1,000 zeta zeros?*

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An overview of algorithms and methods that mathematicians in the 19<sup>th</sup> century and the first half of the 20th century used to verify the Riemann hypothesis. The resulting numerical computations, which used hand calculations and mechanical calculators, include those by Gram, Lindelöf, Backlund, Hutchinson, and Titchmarsh. Some of the ideas behind these algorithms and methods are still in use even today.



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**Ghaith Hiary** is an associate professor of mathematics at The Ohio State University in Columbus. He received his PhD in mathematics from the University of Minnesota in 2008, followed by postdoctoral positions at IAS, Waterloo, and Bristol. He works in analytic number theory and computational mathematics.