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Riemann Hypothesis

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Source

Frank Vega. *Riemann Hypothesis*.

The Riemann hypothesis is considered the holy grail of mathematics. The eminent mathematician David Hilbert once said: "If I were to awaken after having slept a thousand years, my first question would be: has the Riemann Hypothesis been proven?" In 1913, Grönwall found what is known today as the Grönwall's function. Years later, the great Ramanujan found that this function had a certain relationship with the Riemann hypothesis. Since then, Ramanujan began to study certain numbers of which his own tutor Hardy commented to a colleague, confessing: "Even Ramanujan could not make highly composite numbers interesting." Ramanujan had a very long manuscript on highly composite numbers but some of it was not published until they were found stored in a Cambridge library at the end of the 20th century. During all those years, the prolific mathematician Erdős rediscovered the properties of these numbers and they began to be called colossally abundant numbers. The French mathematicians Robin and Nicolas developed during their research a closer relationship between colossally abundant numbers and the Riemann hypothesis. At the beginning of this century, Nicolas, who was also a close collaborator with Erdős, revealed the importance of an extraordinary number that he called hyper abundant number which belongs to the colossally abundant numbers. The author found another close relationship between the Riemann hypothesis and the colossally abundant numbers with hyper abundant numbers using the Grönwall's function which announces that the Riemann hypothesis is indeed true.