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A CONJECTURE OF KRISHNASWAMI

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Let $T(N)$ denote the number of right triangles whose perimeters do not exceed $2N$, and whose sides are relatively prime integers. A list of all such triangles whose perimeters do not exceed 10000 has been given by A. A. Krishnaswami.[1] On the basis of this table he conjectured that

$$T(N) \sim N/7. \tag{1}$$

The asymptotic formula

$$T(N) \sim \pi^{-2}N \log 4 \tag{2}$$

follows from the general theory of "totient points," as developed by D. N. Lehmer in 1900. A statement equivalent to (2) will be found in his paper[2] (p. 328).

The conjecture (1) is not far wrong since

$$\pi^2/\log 4 = 7.11941466.$$

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[1] A. A. Krishnaswami, *On isoperimetrical Pythagorean triangles*, Tôhoku Math. J. vol. 27 (1926) pp. 332–348. Two omissions in Table I may be noted: For $s=3450$, $a=50$, $b=19$; for $s=3465$, $a=55$, $b=8$. This table is the basis for the one at the end of the present paper.

[2] D. N. Lehmer, *Asymptotic evaluation of certain totient sums*, Amer. J. Math. vol. 22 (1900) pp. 293–335.