The Hardy-Ramanujan theorem and related results

Lee Troupe
University of Georgia

Let \( \omega(n) \) denote the number of distinct prime divisors of a natural number \( n \). In 1917, Hardy and Ramanujan famously proved that the normal order of \( \omega(n) \) is \( \log \log n \); in other words, a typical natural number \( n \) has about \( \log \log n \) distinct prime factors. In this talk, we’ll say what it means for an arithmetic function to have a normal order and give some examples. In particular, we’ll discuss the normal order of \( \omega(s(n)) \), where \( s(n) \) is the usual sum-of-proper-divisors function. This new result supports a conjecture of Erdős, Granville, Pomerance, and Spiro; namely, that if a set of natural numbers has asymptotic density zero, then so does its preimage under \( s \).

All welcome. Research students in particular are encouraged to attend.

For further information, contact Jim Brown, jimlb@clemson.edu, Long 111.
Online: http://www.math.clemson.edu/~jimlb/NumberTheoryGroup/NTSeminar.html/