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ANNOUNCEMENTS

The following Mathematicians were awarded a prize of the HARDY-RAMANUJAN SOCIETY for the work mentioned below.

THEOREM (M.Ram Murty), *Define the Ramanujan function* $\tau(n)$ *by*

$$\sum_{n=1}^{\infty} \tau(n) q^n = q \pi_{n=1}^{\infty} (1-q^n)^{24}.$$

Then there exists a constant $c > 0$ *for which there holds*

$$|\tau(n) n^{-\frac{11}{2}}| > \mathrm{Exp}\left(\frac{c \log n}{\log \log n}\right)$$

for an infinite sequence $n = n_1, n_2, n_3, \ldots$ *of values of* n*.*

REF: M. Ram Murty, *Oscillations of Fourier coefficients of Modular Forms,* Math. Ann., 262 (1983), 431-446.

THEOREM (S. Bhargava, Chandrasekhara Adiga and D. D. Somashekara) *Define the sets* S_5 *and* S_6 *by*

$$S_5 = \{n \equiv \pm(1,2,8,9), 10 (mod\ 20)\}$$

$$S_6 = \{n \equiv \pm(3,4,6,7), 10 (mod\ 20)\}$$

Then there holds

$$\Pi_{n=1, n \epsilon S_5}^{\infty} (1-q^n)^{-1} \equiv 1 + \sum_{n=1}^{\infty} \left(q^{5n^2} + q^{n^2}\right) (mod\ 2),$$

$$\Pi_{n=1, n \epsilon S_6}^{\infty} (1-q^n)^{-1} \equiv \sum_{n=1}^{\infty} \left(q^{5n^2-1} - q^{n^2-1}\right) \Big(mod\ 2).$$

and

$$\Pi_{n=1, n \epsilon S_5}^{\infty} (1-q^n)^{-1} + q \sum_{n=1, n \epsilon S_6}^{\infty} (1-q^n)^{-1} \equiv 1 (mod\ 2).$$

REF. S. Bhargava, C. Adiga and D. D. Somashekara, *Parity results deducible from certain theta function identities found in chapter 16 of Ramanujan's second note-book,* the mathematics student, Vol 57 Nos. 1-4 (1989), 121-132.

REMARK. The result is originally due to R. Blecksmith, J. Brillhart and I. Gerst. The novelty of the resutls of S. Bhargava et al consists in simpler proofs using Ramanujan's formulae.

The following result deserves to be widely known.

THEOREM (D. R. Heath-Brown and Jia-Chao-Hua).

Let $\epsilon > 0$ and $\delta > 0$ be any two constants and $n \geq N_0(\delta, \epsilon)$.

Then at least one of the numbers

$$N + 1, N + 2, \ldots, \left[N + N^{\frac{1}{2}+\epsilon}\right]$$

has a prime factor $> N^{\frac{17}{18}-\delta}$.

REF *The largest prime factor of integers in an interval*-II,J.Reine u.Angew.Math. 498(1998), 35-59.