

described in this brief discussion, it is found that the third integer is the sum of three biquadrates, and gives Norrie's solution

$$d = 198593 = \frac{353^4 - 272^4}{15^4} = 21^4 + 8^4 + 2^4.$$

The seventh integer furnishes a second numerical solution

$$d = 5086913 = \frac{651^4 - 599^4}{10^4} = 43^4 + 34^4 + 24^4.$$

It is the intention of the writer to carry the investigation of each case as far as values of $x < 1250$ ($= 2 \cdot 5^4$). The fact that an additional solution was obtained in the first case examined would seem to give some promise that other solutions exist among the lower integers.

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ON THE INVERSION OF THE q -SERIES ASSOCIATED WITH JACOBIAN ELLIPTIC FUNCTIONS

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The elliptic functions $\operatorname{sn}(u, k)$, $\operatorname{cn}(u, k)$ and $\operatorname{dn}(u, k)$ may be computed from theta functions by well known methods outlined in standard texts. (See, for instance, Whittaker & Watson, *Modern Analysis*, 4th edition, p. 485.) Given the modulus k , and $k' = (1 - k^2)^{1/2}$, there is associated with k, k' a function ϵ defined by

$$\epsilon = \frac{1}{2} \left[\frac{1 - (k')^{1/2}}{1 + (k')^{1/2}} \right] = \frac{1}{2} \frac{\vartheta_2(0, q^4)}{\vartheta_3(0, q^4)}.$$

Values of theta functions for a given parameter q can be readily computed, and the Jacobi elliptic functions turn out to be ratios of the theta functions.

The series for ϵ in terms of q is given by

$$(1) \quad \epsilon = \sum_{k=0}^{\infty} q^{(2k+1)^2} \bigg/ 1 + 2 \sum_{k=1}^{\infty} q^{4k^2}.$$

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