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# Numbers with inverted squares 

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#### Abstract

Resumen

Some natural numbers have interesting properties. For instance, the number 28 is the sum of its divisor lower than itself, that is, $28=1+2+4+7+14$. The same occurs with the number 6 . Another example is the pair $(220,284)$ which has the property that each of them is the sum of the proper divisors of another. In this talk, we introduce another pair of number with special characteristics. An example of these numbers is the pair $(12,21)$ which satisfies the following: $$
12^{2}=144, \quad 21^{2}=441 \quad \text { and } \quad(1+2)^{2}=1+4+4
$$

The pair $(13,31)$ has the same properties. A natural question in this context is the following what is the set of all numbers $a_{n} a_{n-1} \cdots a_{1} a_{0}$ which satisfy the properties: 1. If $\left(a_{n} a_{n-1} \cdots a_{1} a_{0}\right)^{2}=b_{m} b_{m-1} \cdots b_{1} b_{0}$, then $\left(a_{0} a_{1} \cdots a_{n-1} a_{n}\right)^{2}=b_{m} b_{m-1} \cdots b_{1} b_{0}$. 2. $\left(a_{0}+a_{1}+\cdots+a_{n-1}+a_{n}\right)^{2}=b_{0}+b_{1}+\cdots+b_{m-1}+b_{m}$.


In this talk we present some results related with above problem.

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