ALPHANUMERICS AND SOLUTIONS (9)

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Prove that if N = 0 there are neither an operation " * " nor integers replacing the letters, for which the following statement:

$$\begin{array}{r} \text{SMARANDACHE} * \\ \text{FUNCTION} * \\ \text{IN} \\ \hline = \text{NUMBERTHEORY} \end{array}$$

is available.

Solution:
Of course " * " may not be an addition, because in that case "S" (as a digit) should be equal to "U", which involves N = 0. Contradiction.
[Same for a substraction.]
Nor a multiplication, because the product should have more that 12 digits.
Not a division, because the quotient should have less than 12 digits.
For other kind of operation, I think it's not necessary to check anymore.

Reference:
Mike Mudge, "The Smarandache Function" in the <Personal Computer World> journal, London, July 1992, p. 420.