ON SMARANDACHE PSEUDO - POWERS OF THIRD KIND

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Abstract. Let m be a positive integer with $m > 1$. In this paper we prove that there exist infinitely many m^{th} perfect powers which are Smarandache pseudo - m^{th} powers of third kind.

Let m be a positive integer with $m > 1$. For a positive integer a, if some nontrivial permutation of the digits is an m^{th} power, then a is called a Smarandache pseudo - m^{th} power. There were many questions concerning the number of Smarandache pseudo - m^{th} powers (see [1, Notions 71, 74 and 77]). In general, Smarandache [2] posed the following

Conjecture. For any positive integer m with $m > 1$, there exist infinitely many m^{th} powers which are Smarandache pseudo-m^{th} powers of third kind.

In this paper we verify the above conjecture as follows.

Theorem. For any positive integer m with $m > 1$, there exist infinitely many m^{th} powers are Smarandache pseudo-m^{th} powers of third kind.

Proof. For any positive integer k, the positive integer is an m^{th} power. Notice that $0 \ldots 01$ is a nontrivial permutation of the digits of 10^{km} and 1 is also an m^{th} power. It implies that there exist infinitely many Smarandache pseudo - m^{th}

powers of third kind. The theorem is proved.

References

1. Dumitrescu and Seleacu, Some Notions and Questions In Number Theory, Erhus Univ. Press, Glendale, 1994.
2. F.Smarandache, Only Problems, not Solutions! Xiquan Pub. House, Phoenix, Chicago, 1993