

SMARANDACHE FRIENDLY CUBE NUMBERS

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Abstract The main purpose of this paper is to introduce new concepts of Smarandache numbers, namely Smarandache Friendly Cube Numbers, and give definitions, curious note, theorem, conjectures, proposed future studies, and ask open problems.

Keywords: Smarandache Friendly Triple Cube Numbers; Smarandache Friendly Pairs Cube Numbers.

1.1 Definition. The positive integers of ordered triple (m, n, k) are called Smarandache Friendly Triple Cube Numbers, denoted by $SFTCN_{(m,n,k)}$, if the following conditions satisfy:

- 1) The sum of its digits (i.e. $m, n,$ and k) is cube.
- 2) The second integer (n) is formed by summing the digits of the first integer (m) after cubing it, and the integer (n) must be the reverse order of the first number (m).
- 3) The third integer (k) is obtained by cubing the second integer (n) and summing its digits, and (k) must equal the sum of its digits after cubing (k).

1.2 Example: $(53, 35, 26)$ is $SFTCN_{(53,35,26)}$, note the following conditions:

- 1) The sum of the digits of (53) is $5 + 3 = 8(\text{cube})$.
- 2) $(53)^3 = 148877$, then $1 + 4 + 8 + 8 + 7 + 7 = 35$, the digits sum is also cube ($3 + 5 = 8$), and 35 is formed from the backorder of 53 .
- 3) $(35)^3 = 42875$, then $4 + 2 + 8 + 7 + 5 = 26$, the sum digits of 26 are $2 + 6 = 8$, which is cube, and $26^3 = 17576$, $1 + 7 + 5 + 7 + 6 = 26$.

The proposed sequence of the

$$SFTCN_{(m,n,k)} := \{(10, 1, 1), (53, 35, 26), (62, 26, 26), (80, 8, 8), \dots\}$$

1.3 Conjectures:

- 1) The $SFTCN_{(m,n,k)}$ contains infinitely many triples.
- 2) The $SFTCN_{(m,n,k)}$ contains infinitely many triples that satisfy Transitive property, but there are exceptions such as the triple $(53, 35, 26)$.

1.4 Open problems: