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Discussion on the positive integer solution of equation $k\varphi(m) = S(m^t)$. (Chinese. English summary) Zbl 07448407

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Summary: Euler function $\varphi(n)$ and Smarandache function $S(n)$ are two important arithmetic functions in number theory. The solvability of equations involving Euler function $\varphi(n)$ and Smarandache function $S(n)$ has attracted the attention of many number theory enthusiasts, and has obtained rich research results. The solvability of the equation $k\varphi(m) = S(m^{31})$ was discussed in this note. Based on the properties of Euler function $\varphi(n)$ and Smarandache function $S(n)$ and the elementary method, the equation has positive integer solutions only when $k = 1, 2, 3, 4, 5, 6, 8, 9, 10, 12, 16, 24, 32, 33$, and all positive integer solutions of it were given.

MSC:

11D41 Higher degree equations; Fermat's equation
11B68 Bernoulli and Euler numbers and polynomials
11B83 Special sequences and polynomials

Keywords:

Euler function; Smarandache function; solvability; positive integer solution

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