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The solutions of arithmetic function equation $k\varphi(Y) = \varphi_2(Y) + S(Y^8)$. (Chinese. English summary) [Zbl 07448418](#)

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Summary: The solvability of the equation $k\varphi(Y) = \varphi_2(Y) + S(Y^8)$ involving $\varphi(n)$, $\varphi_e(n)$ and $S(n)$ three arithmetic functions is discussed. By using the properties of these three arithmetic functions, it is obtained that the equation has positive integer solutions only when $k = 1, 2, 4, 5, 9, 11$, and its specific positive integer solutions are given, where the arithmetic function $\varphi(n)$ is Euler function, the arithmetic function $\varphi_2(Y)$ is generalized Euler function and the arithmetic function $S(n)$ is Smarandache function.

MSC:

- [11D41](#) Higher degree equations; Fermat's equation
- [11B68](#) Bernoulli and Euler numbers and polynomials
- [11B83](#) Special sequences and polynomials

Keywords:

[Euler function](#); [generalized Euler function](#); [Smarandache function](#); [positive integer solution](#)

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