Counterexample to Euler's Conjecture for Eighth Power

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A direct computer search yielded:

$$90^8 + 223^8 + 478^8 + 524^8 + 748^8 + 1088^8 + 1190^8 + 1324^8 = 1409^8$$

as the counterexample to a conjecture proposed by Leonhard Euler in 1679 that at least n n th powers are required to sum to an n th power, $n > 2$ (Singh, 2017, p. 213; Nahin, 2011, p. 350).

Reference

- Nahin, P. J. (2011). *Dr. Euler's Fabulous Formula: Cures Many Mathematical Ills*. Princeton University Press.
- Singh, S. (2017). *Fermat's Enigma: The Epic Quest to Solve the World's Greatest Mathematical Problem*. Knopf Doubleday Publishing Group.