

# COUNTEREXAMPLE TO EULER'S CONJECTURE ON SUMS OF LIKE POWERS

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A direct search on the CDC 6600 yielded

$$27^5 + 84^5 + 110^5 + 133^5 = 144^5$$

as the smallest instance in which four fifth powers sum to a fifth power. This is a counterexample to a conjecture by Euler [1] that at least  $n$   $n$ th powers are required to sum to an  $n$ th power,  $n > 2$ .

## REFERENCE

1. L. E. Dickson, *History of the theory of numbers*, Vol. 2, Chelsea, New York, 1952, p. 648.