Title: Powerful numbers in the product of consecutive integer values of a polynomial

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Let n and r be positive integers. Also let k be an odd positive integer and d be a non-negative integer. In this paper, we prove that if k has at most four distinct prime factors, then the product $((d+1)^k + r^k)((d+2)^k + r^k)\cdots((d+n)^k + r^k)$ is not a powerful number for $n \geq \max\{r+d, 59-r-d\}$. As a consequence, we prove that if k has at most four distinct prime factors, then the product $(1^k+1)(2^k+1)\cdots(n^k+1)$ is not a powerful number.

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