CAMO 2019/2

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Twitch Solves ISL

Episode 28

Problem

Let k be a positive integer, $p > 3$ a prime, and n an integer with $0 \le n \le p^{k-1}$. Prove that

$$\binom{p^k}{pn} \equiv \binom{p^{k-1}}{n} \pmod{p^{2k+1}}.$$

Video

https://youtu.be/5hMZamIYjD8

Solution

TODO. There used to be a solution here, but I don't think it's actually correct.