Behind the scenes and test review

Evan Chen

23 May 2026

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- Had our team meeting and slotted the test by on Saturday, January 24, 2026.

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- Evan: "Try your best to come up with one problem before January 19, 12 noon Eastern time."
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- Instead I got 47 problems!
- Had our team meeting and slotted the test by on Saturday, January 24, 2026.
- Evacuated everyone from Boston on Sunday, January 25, 2026.

Author reveal

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1. Serena An

Author reveal

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2. Yours truly

Author reveal

1. Serena An
2. Yours truly
3. Holden Mui

Author reveal

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3. Holden Mui
4. tenth

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5. Holden Mui

AMM2

Experimental $\mathbb{R}$ analysis problem. Our two official solutions use either:

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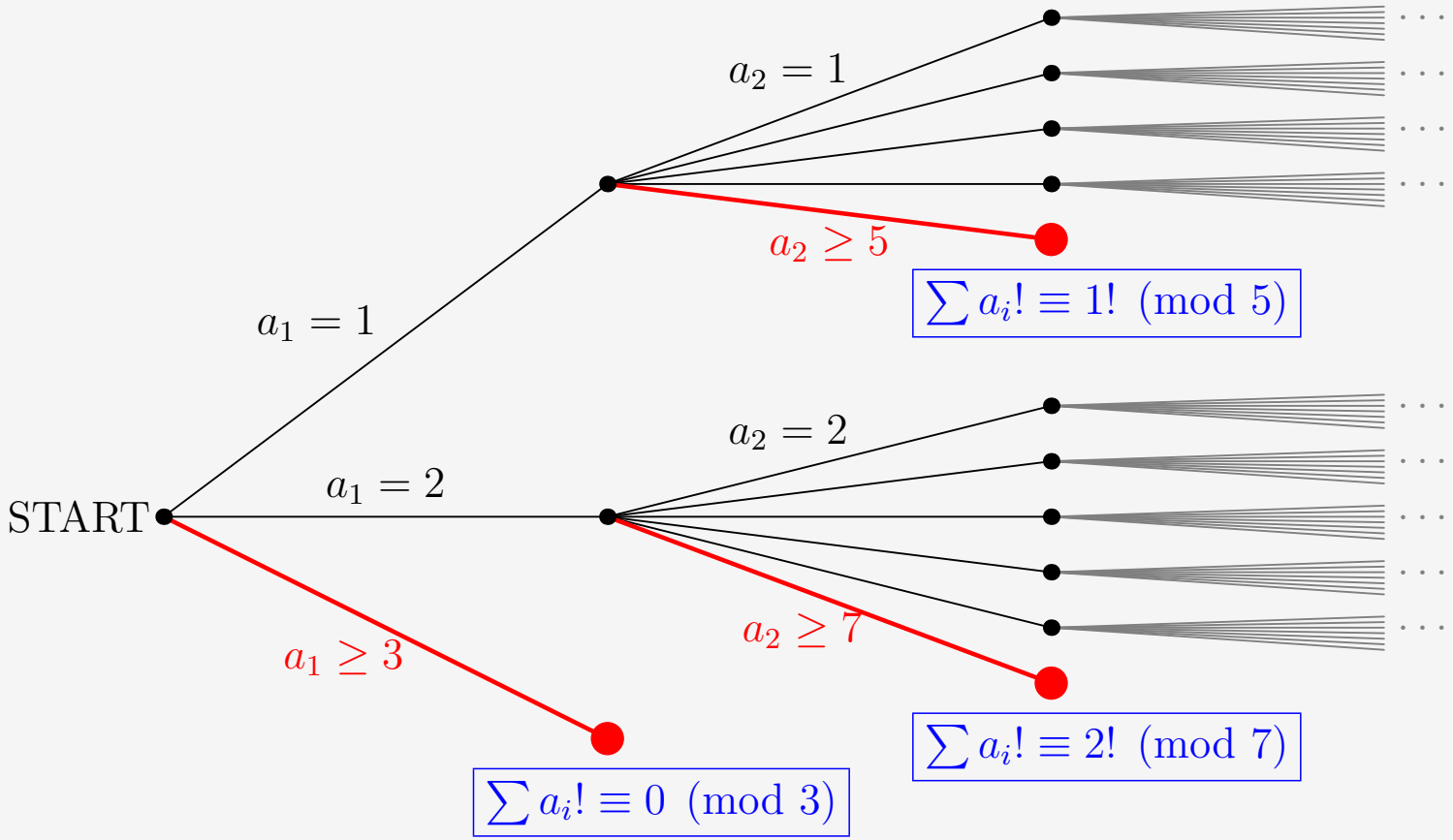
Old version.

Let $\mathbb{R}$ denote the set of real numbers and let $\mathbb{Z}_{>0}$ denote the set of positive integers. Given a function $p\colon \mathbb{R} \to \mathbb{Z}_{>0}$, we say a function $f : \mathbb{R} \to \mathbb{R}$ is *p-orbital* if for every real number x, the equation

$$\underbrace{f(f(\ldots(f}_{n \text{ times}}(x))\ldots)) = x$$

is true for $n = p(x)$ but not for any positive integer n less than $p(x)$. Determine all functions p such that there exists a function which is p-orbital and strictly decreasing.

AMM3



For $n = 5$, how many primes do you think this proof uses?

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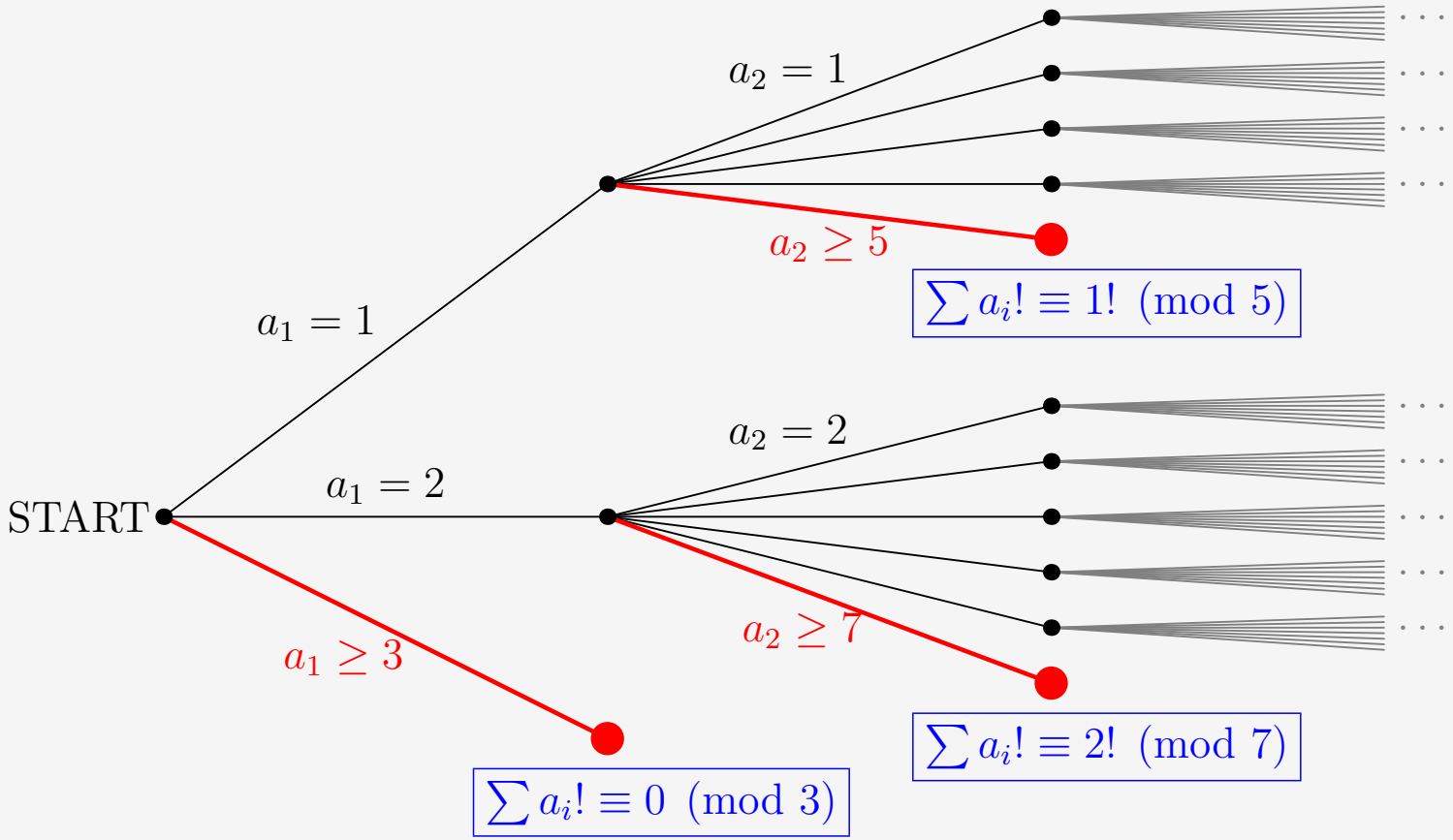

For $n = 5$, how many primes do you think this proof uses?

81,038,822,695.

AMM5