

28. Regal de problema

$$\sum_{k=1}^{2026} \frac{2026}{\cancel{2026}} = \sum_{k=1}^{2026} \frac{2026}{2026 \frac{\log(k(k+1))}{\log 2026}} = \rightarrow \text{Se conin } \text{baza de logs.}$$

$$= \sum_{k=1}^{2026} \frac{2026}{\cancel{2026} \log_{2026}(k(k+1))} = 2026 \sum_{k=1}^{2026} \frac{1}{k(k+1)} =$$

Tiza de matru telescopi

$$2026 \left(\sum_{k=1}^{2026} \frac{1}{k} - \frac{1}{k+1} \right) = \text{2026}$$

HAPPY NEW YEAR THEORIANS

La integral:

Prop: Sin e sin, $\sin^n(x) = -\sin^n(2\pi-x) \quad \forall x \in [0, 2\pi]$

Dem: Trivial.

Prop: $\prod_{n=1}^{2026} \sin^n x = \sin^{2053351} x$

Dem: Venim cu ecclav de la FIB que ens to la jst

$$\rightarrow \int_0^{2\pi} \sin^n x dx = \int_0^{2\pi} \sin^{2053351} x dx \quad \text{anb } n=2053351 \text{ sar}$$

→ Par la egade d'abns: simetrica donc

$$\boxed{0 = \frac{0}{67}}$$