Theorem A. Prove that for every positive integer n,

$$1^2 + 2^2 + 3^2 + \cdots + n^2 = \frac{n(n+1)(2n+1)}{6}.$$

Proof. Induction! □

Theorem B. Let $a, b \in \mathbb{N}$ and suppose that $a|b$. Then $(a+1)\big|\left(b + \frac{b}{a}\right)$.

Proof. □