Proof without words: sum of a numerical series by telescoping

Theorem: \[ \sum_{n=1}^{\infty} \frac{2n + 1}{n^2 (n + 1)^2} = 1. \]

Proof: Here is a visual proof of the theorem:

\[
\begin{align*}
\frac{1}{x^2} & = \frac{1}{n^2} - \frac{1}{(n+1)^2} \\
\frac{2n + 1}{n^2 (n + 1)^2} & = \frac{1}{n^2} - \frac{1}{(n+1)^2}
\end{align*}
\]

ÁNGEL PLAZA
University of Las Palmas de Gran Canaria, Spain
e-mail: angel.plaza@ulpgc.es