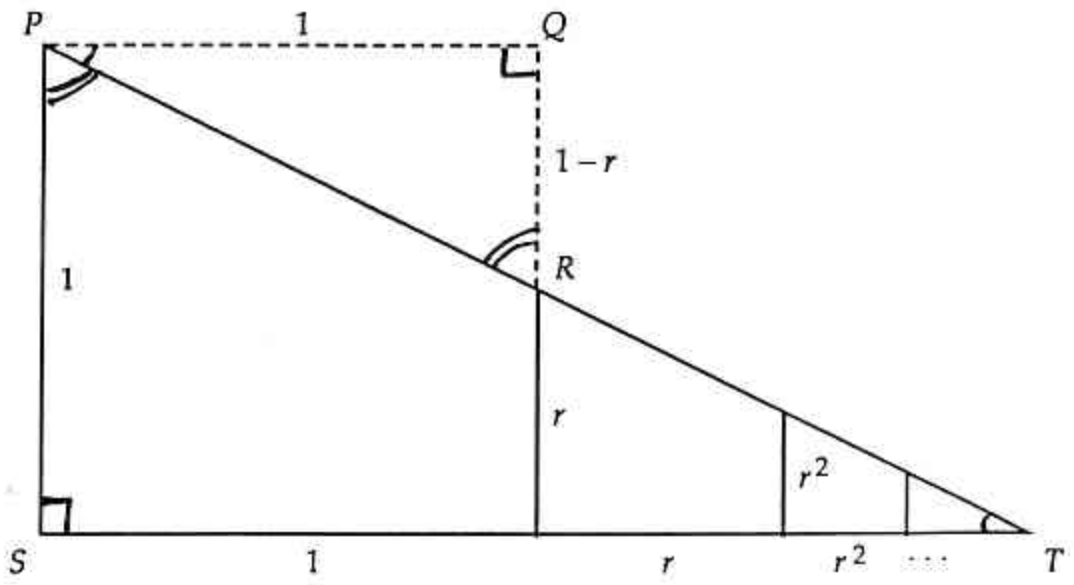
Roger Nelsen

Geometric Series II



$$\Delta PQR \sim \Delta TSP$$

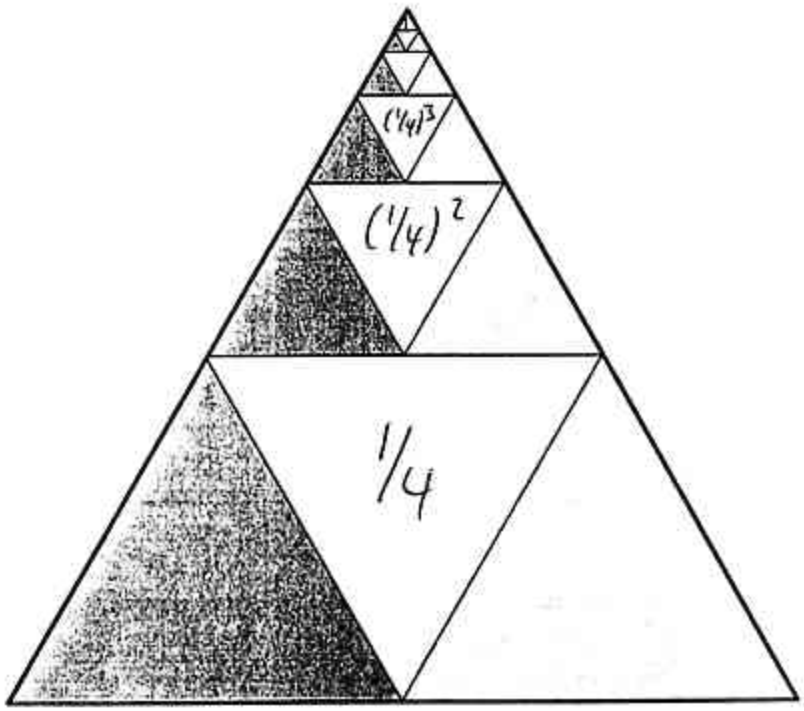
$$\therefore 1 + r + r^2 + \ldots = \frac{1}{1 - r}.$$

—Benjamin G. Klein and Irl C. Bivens

Proofs without Words II - Nelsen

A Geometric Series

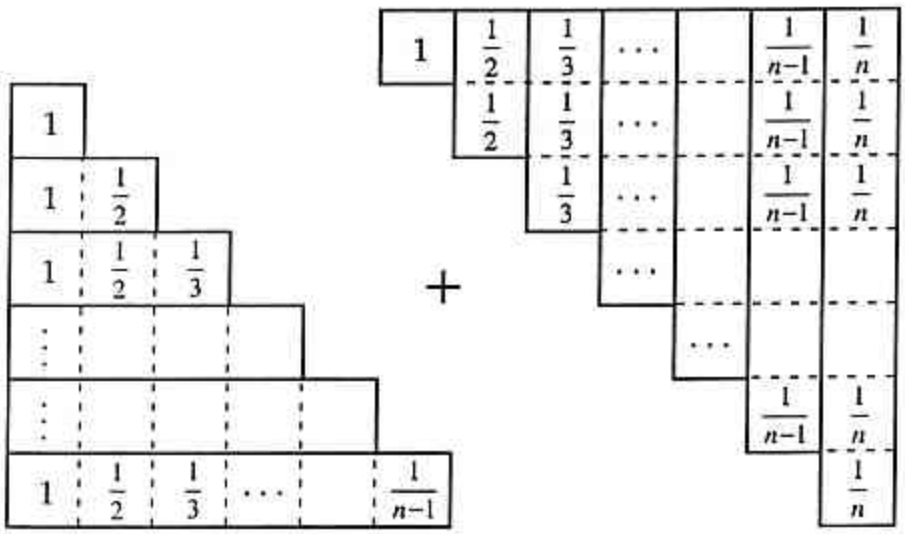
$$\frac{1}{4}+\left(\frac{1}{4}\right)^2+\left(\frac{1}{4}\right)^3+\cdots=\frac{1}{3}$$



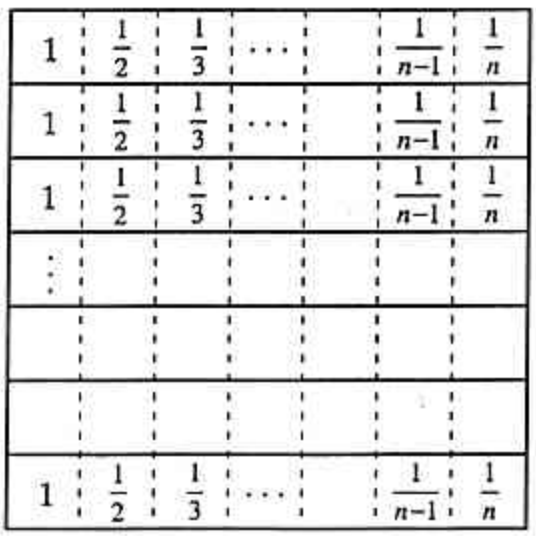
—Rick Mabry

Sums of Harmonic Sums

$$H_k = 1+\frac{1}{2}+\frac{1}{3}+\cdots+\frac{1}{k} \Rightarrow \sum_{k=1}^{n-1} H_k = nH_n - n$$



$$=$$



$$\sum_{k=1}^{n-1} H_k + n = nH_n$$