Sequences

Contents

1   Summations

1.1   ❗ Arithmetic Series

Let $(a_i)_{i \geq 0}$ be an arithmetic sequence with common difference d. Then for some $n \in \mathbb{N}$,

$$\sum_{i=0}^{n} a_i = \frac{(n+1)(a_0 + a_n)}{2}.$$

Proof. ∃ − Real.Arithmetic.sum_recursive_closed

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1.2   ❗ Geometric Series

Let $(a_i)_{i \geq 0}$ be a geometric sequence with common ratio $r \neq 1$. Then for some $n \in \mathbb{N}$,

$$\sum_{i=0}^{n} a_i = \frac{a_0(1 - r^{n+1})}{1 - r}.$$

Proof. ∃ − Real.Geometric.sum_recursive_closed

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