

A - Level Maths Sequences Recap

Arithmetic Sequences

General form of the sequence

Term to term rule

n th term rule

Sum of the first n terms

Proof:

Example

Find the sum of the first 10 terms of the arithmetic series with first term 4 and common difference 3



Geometric Sequences

General form of the sequence

Term to term rule

n th term rule

Sum of the first n terms

Proof:

Sum to infinity

Example

Find the sum to infinity of the geometric series with common ratio $\frac{1}{4}$ and first term 24.



Sequence and Series Properties

Increasing Sequence

Decreasing Sequence

Periodic Sequence

Sigma Notation



Example

A sequence is arithmetic with 2nd term 7 and 10th term 31. Find the sum of the first 100 terms.



Example

A sequence is defined by $u_{n+1} = pu_n + q$ where p and q are constants.

The first three terms of the sequence are given by $u_1 = 200$, $u_2 = 100$ and $u_3 = 60$.

- a) Find the values of p and q
- b) Find the value of u_5
- c) The limit of u_n as $n \rightarrow \infty$ is L . Find L .

