

## Sequences and Series Revision Questions



LC HL Project Maths

**1. Sequence notation**

e.g. For a sequence,  $u_n = 2 \times 3^{n-1}$ . Find the first three terms of this sequence and find the term of the sequence which has a value of 12288.

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### 2. Limits of sequences

e.g. calculate  $\lim_{n \rightarrow \infty} \frac{5(4^n) - 2(3^n)}{3(4^n) + 7(2^n)}$

### 3. Arithmetic sequences and series

e.g. The tenth term of an arithmetic sequence is 10 and the sum of the first ten terms is  $-35$ . Find the first term and the common difference of the sequence.

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**4. Geometric sequences and series**

e.g. The sum of the first six terms of a geometric series is nine times the sum of the first three terms. Find the common ratio.

**5. Infinite geometric series**

e.g. find the common ratio of a geometric series for which the sum to infinity is six times the first term.

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### 6. Applications of infinite geometric series

e.g. by forming an infinite geometric series, write  $1.\dot{4}\dot{7} = 1.474747\dots$  in the

form  $\frac{p}{q}$ , where  $p, q \in \mathbb{N}$ .

### 7. Quadratic and Cubic Sequences

Express the sequence -1, 13, 51, 125, 247... as a cubic polynomial