Sum of Finite Geometric Series

Today's Standard

HSA.SSE.B4 - Derive the formula for the sum of a finite geometric series (when the common ratio is not 1), and use the formula to solve problems. For example, calculate mortgage payments.*

Cues	Notes
What is a geometric series?	A geometric series is a sequence of numbers where each term is found by multiplying the previous term by a fixed, non-zero number called the common ratio.
How do you derive the sum formula?	To derive the sum formula, we use the properties of geometric sequences and algebraic manipulation.
What is the common ratio?	The common ratio is the fixed number we multiply by to get from one term to the next in a geometric sequence.
Why can't the common ratio be 1?	If the common ratio is 1, the series becomes arithmetic, and the sum formula for geometric series does not apply.
How is this formula used in real life?	This formula is used to solve problems in finance, like calculating mortgage payments and investment growth.

Summary

The formula for the sum of a finite geometric series is derived using algebraic techniques and is essential for solving various real-world problems, especially in finance.