

Arithmetic and Geometric Series – Lesson

MCR3U

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Definitions

Formula for general term (explicit formula):

Sequence:

Arithmetic Sequence:

Geometric Sequence:

Series:

Example 1: Find S_4 of the sequence represented by $t_n = 1 + (n - 1)3$

Arithmetic Series

General Form

OR

Example 2: For the series $1 + 3 + 5 + 7 + \dots$ find S_{23}

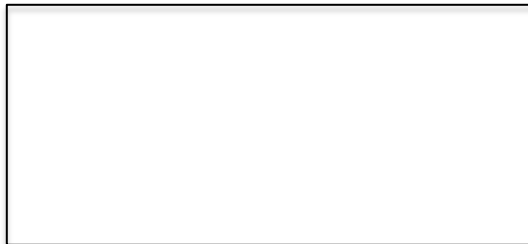
Example 3: An arithmetic series with 52 terms starts with -7 and ends with 102. Find the sum of the series.

Note: Since we know t_{52} , it would be easier to use this version of the formula...

$$S_n = \frac{n}{2}(a + t_n)$$

Geometric Series

General form



Example 4: For the geometric sequence $-1 + 2 - 4 + 8 - 16 \dots$

a) Find S_5

b) Find S_{13}

Example 5: A student is offered a job with a math teacher that will last 20 hours. It pays \$4.75 for the first hour, \$5 for the second hour, \$5.25 for the next hour, and so on. How much will the student earn in total?