Arithmetic Sequences

An arithmetic sequence has a **common difference**

+3   +3   +3

$1 , 4 , 7 , 10 , \dots , 1 \times (n-1) \times 3$

+d   +d   +d

$U_1 , U_1 + d , U_1 + 2d , U_1 + 3d , \dots U_1 + (n-1)d$

The nth term of an arithmetic sequence , $U_n = U_1 + (n-1)d$

Series

A series is formed when we add terms together: $1 + 4 + 7 + 10$

We can find the sum of this series using the formulae

$$S_n = \frac{n}{2}(U_1 + U_n),$$ useful when we know U_n

$$S_n = \frac{n}{2}(2U_1 + (n-1)d),$$ useful when we don't know U_n

Solving Problems with GDC

You can make good use of your graphical calculator to find out how many terms there are in a sequence. The table function is particularly useful:

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