

SEQUENCES

	Arithmetic Sequence	Geometric Sequence
Characteristic	Always add the same value to get the next term.	Always multiply by the same value to get the next term.
Examples:	2, 5, 8, 11, 14, ... adds 3 7, 3, -1, -5, -9, ... adds -4	1, 2, 4, 8, 16, ... multiplies by 2 81, 27, 9, 3, 1, ... multiplies by 1/3
Same Value	"Common Difference" = d	"Common Ratio" = r
Find the n-th Term	$a_n = a_1 + (n - 1) * d$	$a_n = a_1 * r^{(n - 1)}$
Sum of Finite/Partial Sequence	$S_n = \frac{n}{2} (a_1 + a_n)$	$S_n = a_1 \left(\frac{1-r^n}{1-r} \right)$
Sum of an Infinite Sequence	Does Not Exist	$S_\infty = \frac{a_1}{1-r}$

Meaning of Variables:

a_n = n -th Term

a_1 = 1st Term

n = Common Difference

r = Common Ratio

S = Sum of Sequence