

Arithmetic Sequences

9th Grade

Add the same amount each time, and the formula that jumps to any term.

In an arithmetic sequence each term is the previous one plus a constant common difference d .

$$a_n = a_1 + (n - 1)d$$

3, 7, 11, 15...

$d = 4$

Subtract any term from the next.

Find the 20th term

$$a_{20} = 3 + 19(4) = 79$$

$n - 1$, not n . The first term needs no jumps.

-2, -5, -8...

$d = -3$

A negative difference means it decreases.

Graph it

a straight line

Constant difference means constant slope.

THE COMMON MISTAKE

× $a_{20} = 3 + 20(4)$

✓ $a_{20} = 3 + 19(4)$

Getting from term 1 to term 20 takes 19 steps, not 20.

Arithmetic sequences are linear functions on the whole numbers. d is the slope.