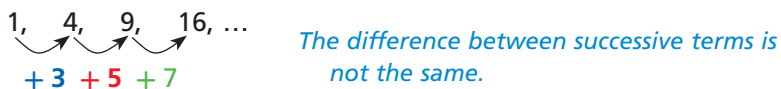


B 1, 4, 9, 16, ...

Find the difference between successive terms.



This sequence is not an arithmetic sequence.



Determine whether each sequence appears to be an arithmetic sequence. If so, find the common difference and the next three terms.

- 1a. $-\frac{3}{4}, -\frac{1}{4}, \frac{1}{4}, \frac{3}{4}, \dots$ 1b. $-4, -2, 1, 5, \dots$

To find the n th term of an arithmetic sequence when n is a large number, you need an equation or rule. Look for a pattern to find a rule for the sequence below.

1	2	3	4...	n ← Position
↓	↓	↓	↓	
3,	5,	7,	9...	← Term
a_1	a_2	a_3	a_4	a_n

The sequence starts with 3. The common difference d is 2. You can use the first term and the common difference to write a rule for finding a_n .

Words	Numbers	Algebra
1st term	3	a_1
2nd term = 1st term plus common difference	$3 + (1)2 = 5$	$a_1 + 1d$
3rd term = 1st term plus 2 common differences	$3 + (2)2 = 7$	$a_1 + 2d$
4th term = 1st term plus 3 common differences	$3 + (3)2 = 9$	$a_1 + 3d$
⋮	⋮	⋮
n th term = 1st term plus $(n - 1)$ common differences	$3 + (n - 1)2$	$a_1 + (n - 1)d$

The pattern in the table shows that to find the n th term, add the **first term** to the product of $(n - 1)$ and the **common difference**.



Finding the n th Term of an Arithmetic Sequence

The n th term of an arithmetic sequence with **common difference** d and **first term** a_1 is

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

COMMON CORE GPS

EXAMPLE 2

MCC9-12.F.BF.2

Finding the n th Term of an Arithmetic Sequence

Find the indicated term of each arithmetic sequence.

A 22nd term: 5, 2, -1, -4, ...

Step 1 Find the common difference.



my.hrw.com



Online Video Tutor