Sequence: an ordered list of numbers

Term: Each of the numbers in a sequence

Series: The sum of the terms of a sequence

Find the next three terms in each sequence.

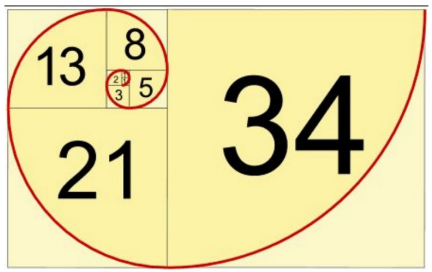
5. 11, 15, 24, 40, ... 65, 101, 150

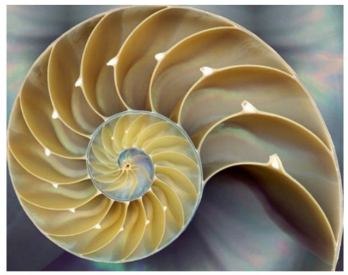
6. 7, −14, 42, −168, ... 840, -5040, 35280

7. 3250, 2600, 2080, 1664, ... 1331.2, 1064.96, 851.968

8. 1, 1, 2, 3, 5, 8, ... 13, 21, 34

Fibonacci Sequence



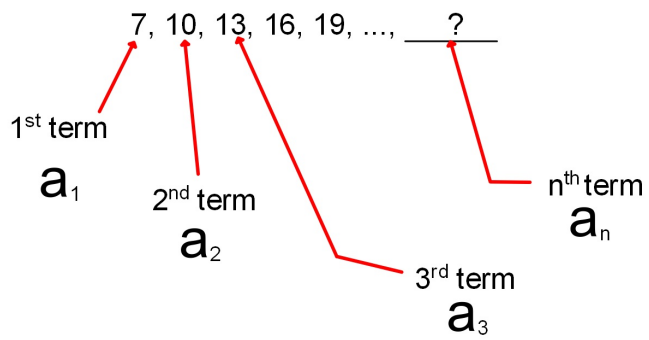


Find the next three terms in each sequence.

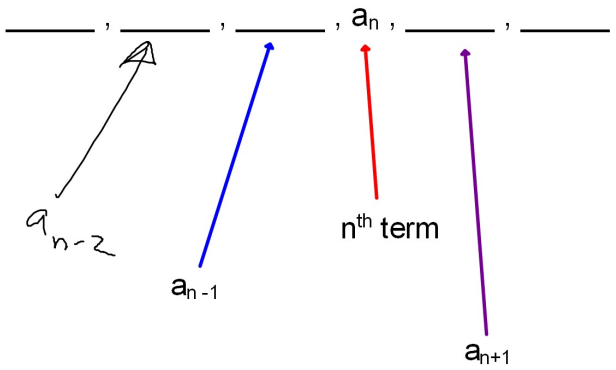
9. J, F, M, A, M, ...

10. f, s, t, f, f, s, s, ... e, n, t

Use this sequence:



n is the term or position number



Explicit Formula:

A formula that expresses the n^{th} term using n (term number).

Example: Use this explicit formula

$a_n = 4n + 1$

What is the 5th term?

5 +4 / a_1 9 +4 / a_2 13 / a_3 17 / a_4 ...

$4(5)+1=21$

$a_5 = 21$

Write an explicit formula for each sequence:

1. 1, 4, 9, 16, 25, ...
   1 2 3 4 5
   $a_n = n^2$

2. 2, 4, 8, 16, 32, ...
   1 2 3 4 5
   $a_n = 2^n$

3. $4^2\ 5^2\ 6^2\ 7^2\ 8^2$
16, 25, 36, 49, 64, ... $a_n = (n+3)^2$
1 2 3 4 5

4. +6 +6 +6 +6
5, 11, 17, 23, 29, ...
1 2 3 4 5

$6n - 1$

$5 + 6(n-1)$

Recursive Formula: Defines the n^{th} term (a_n) using the previous term(s) (a_{n-1}) and sometimes (a_{n-2})

Example: Recursive Formula: $a_1 = 9$
$a_n = 2(a_{n-1})$

State the first 4 terms of this sequence

9 18 36 72

a_1 $a_2 = (a_1)2$

Write a recursive formula for each sequence:

1. 48, 43, 38, 33, ...

$a_1 = 48$

$a_n = a_{n-1} - 5$

2. 1134, 378, 126, 42, ...
÷3 ÷3 ÷3

$a_1 = 1134$

$a_n = \frac{a_{n-1}}{3}$ or $(a_{n-1})\frac{1}{3}$

Sec 11-2: Arithmetic Sequences

Created by adding the same number each time.

The difference between consecutive terms is constant.

d = Common Difference

3, 8, 13, 18, 23

d = 5