

Name: _____



Objective: Arithmetic and Geometric Sequences

Homework FN7 – NYA p.463 #1 – 17 (odd), 19, 25, 26, 35

Do Now: Write the function rule

1. $y =$

2. $y =$

1.

x	y
-5	-14
0	1
5	16
10	31

2.

x	y
6	10
8	11
10	12
12	13

Exam Prep: What is the next number in the sequence: 1, 1, 2, 3, 5, 8, 13... ?

- a) 18 b) 21 c) 26 d) It is not a sequence



Arithmetic Sequences

A set of numbers that form a pattern is called a sequence. In arithmetic sequences, there is a constant common difference between terms.

Finding the Common Difference

$-7, -3, 1, 5\dots$ 	$17, 12, 7, 2\dots$ 	$9.8, 11.0, 12.2, 13.4\dots$
Common Difference: +4	Common Difference:	Common Difference:

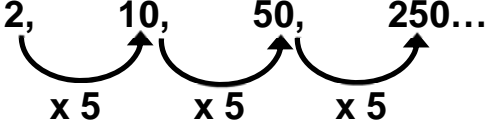
Write the next two terms:

1. 5, -2, -9, -16... 2. 11, 24, 37, 40...
 3. 8, 6, 4, 2... 4. 19, 19, 19, 19...

Rule for Arithmetic Sequences	<u>Practice</u>
$A(n) = a + (n - 1)d$	Find the 8 th term. 1. 10, 15, 20, 25...
Example: $A(n) = 7 + (n - 1)4$ First term: $A(1) = 7 + (1 - 1)4 = 7$ Second term: $A(2) = 7 + (2 - 1)4 = 11$ Fifth term: $A(5) = 7 + (5 - 1)4 = 23$ Tenth term: $A(10) = 7 + (10 - 1)4 = 43$	Find the 12 th term. 2. 2, 5, 8, 11... Find the 20 th term. 3. 6, 15, 24, 33... Find the 25 th term. 4. -12, -14, -16, -18...

Geometric Sequences

In geometric sequences, there is a constant common ratio between terms.

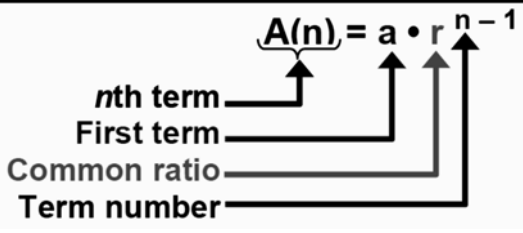
$2, \quad 10, \quad 50, \quad 250\dots$ 	Here the common ratio is 5.
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Practice: Find the common ratio of each sequence.

1. 2, -6, 18, -54...	2. 56, 28, 14, 7...
3. 4, 20, 100, 500...	4. 1000, 100, 10, 1...

Write the next two terms:

- | | |
|----------------------|------------------------|
| 1. -2, 6, -18, 54... | 2. 5, 20, 80, 320... |
| 3. 8, 8, 8, 8... | 4. 200, 100, 50, 25... |

Rule for Geometric Sequences	Practice
$A(n) = a \cdot r^{n-1}$ 	Find the 6 th term. 1. 10, 20, 40...
Example: $A(n) = 5(-2)^{n-1}$ First term: $A(1) = 5(-2)^{1-1} = 5$ Fifth term: $A(5) = 5(-2)^{5-1} = 5(-2)^4 = 80$ Tenth term: $A(10) = 5(-2)^{10-1} = 5(-2)^9 = -2560$	Find the 75 th term. 2. -3, 3, -3, 3...
	Find the 12 th term. 3. 600, 60, 6, 0.6...
	Find the 8 th term. 4. 20, 10, 5, 2.5...