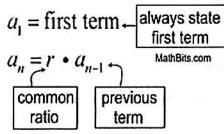
	<b>D</b> .	
Name: UNIT 5	Date: LESSON	
DO NOW: Which of the following sequences is a george	metric sequence?	* *
(a) {2, 4, 6, 8, 10,} (b) {2, 4, 8, 16, 32,}	(c) {2, 4, 7, 11, 16,} Neither	(d) {2, 8, 14, 20, 26,}
A d=2 r=2	Neither	A. d=6
AIM: GEOM	ETRIC FORMULA	
Geometric Formula to find the n <sup>th</sup>	term Vo	ocabulary of Sequences
$a_n = a_1 r^{n-1}$	$a_n = \text{th}$ $n = \text{the}$	ne first term in the sequence ne $n^{th}$ term in the sequence term number e common ratio
*You do NOT have to memorize! It's on the referen	nce sheet!	°
1. Given the geometric sequence 2, 6, 18, 54	$a_1 = \widehat{Q}$	Sequence a <sub>n</sub> term
a) Write the explicit formula	r= 3	a <sub>1</sub> 2
a) write the explicit formula $ \begin{array}{c} A_n = A_1 \cap A_1 \\ A_n = A_2 (3)^{n-1} \end{array} $	edo not	a <sub>2</sub> (0
$ \alpha_n = \alpha(3)^{n-1} $	do not multiply the 'a." and "r"	a <sub>3</sub> \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \
	'a." and "r"	а <sub>4</sub> БЦ
	values ble of	a <sub>5</sub> 1100
Q12=2(3)12-1	pemdas	1140
Q1a = 354,294 > pr	redict very	3.
2. Given the geometric sequence 160, 80, 40	arge #	
a) Write the explicit formula	$a_1 = 160$ $r = \frac{1}{2}$	Sequence a <sub>n</sub> term
$a_n = a_1 r^{n-1}$		a <sub>1</sub>   ( ( )
$a_n = a_1 r^{n-1}$ $a_n = 160(\frac{1}{2})^{n-1}$	r= 80 or 10	$a_2$
	160 20	a <sub>3</sub>
The state of the s		a <sub>4</sub> 00
b) Use the explicit formula to find the 8 <sup>th</sup> term.	predict very small#	a <sub>5</sub> 20
u8-100(a)	very small	" 10
Q8=160(去)8-1 Q8=与or1,25		

## To summarize the process of writing a recursive formula for a geometric sequence:

- 1. Determine if the sequence is geometric (Do you multiply or divide the same amount from one term to the next?)
- **2.** Find the common ratio. (*The number you multiply or divide.*)
- 3. Create a recursive formula by stating the first term, and then stating the formula to be the common ratio times the previous term.



- 3. Consider the sequence following: 3, 9, 27, 81...
- a) Write a *recursive formula* for the sequence.

$$a_{n} = 3 \cdot a_{n-1}$$

b) Write an *explicit formula* for the sequence.

$$a_n = a_1 r^{n-1}$$
 $a_n = 3(3)^{n-1}$ 

c) Use the explicit formula to find the 10<sup>th</sup> term.

$$a_{10} = 3(3)^{10-1}$$

$$a_{10} = 59,049$$

- 4. Consider the sequence following: 4, 8, 16, 32, 64...
- a) Write a recursive formula for the sequence.
- b) Write an explicit formula for the sequence.

$$\frac{Q_n = Q_1 r^{n-1}}{Q_n = 4(2)^{n-1}}$$
s) Use the explicit formula to find the 16

c) Use the explicit formula to find the 16<sup>th</sup> term.

***STRATEGIES	for	ancuraring	multiple	ahaiaa	anactions	ha	
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- First determine whether the sequence is arithmetic or geometric.
- Then write down the sequence formula from the reference sheet.
- Eliminate choices that do not resemble the formula!
- If needed, plug in terms into the choices left over!

$$a_n = a_1 r^{n-1}$$
OR
$$a_n = a_1 + (n-1)d$$

5. A sequence has the following terms:  $a_1 = 4$ ,  $a_2 = 10$ ,  $a_3 = 25$ ,  $a_4 = 62.5$ . Which formula represents the *n*th term in the sequence?

represents the *n*th term in the sequence?

$$a_{n} = 4 + 2.5n$$

$$a_{n} = 4 + 2.5(n-1)$$
3) 
$$a_{n} = 4(2.5)^{n}$$
4) 
$$a_{n} = 4(2.5)^{n-1}$$

$$a_{n} = 4(2.5)^{n-1}$$

$$a_{n} = 4(2.5)^{n-1}$$

	the nth term of sequence B
shown below? ∩= \	234
B=10	,12,14,16,(A) d=a
(1) $b_n = 8 + 2n$	>8+a(1) = 1DV
2) $b_n = 10 + 2n$	
751 234	8+2(2) = 12~
$b_n = 10(2)^n$	8+2(3) = 141
1) 1 10/21/5-1	818(3) 110
$b_n = 10(2)^{n-1}$	

		1.1	
		-	
		357.5	
		1	

r 10 = 15

Name:

**EXIT TICKET** 

Given the geometric sequence 16, 32, 64, 128.....

a) Write the explicit formula for the sequence.

$$a_n = a_1 r^{n-1}$$

$$a_n = |b(a)^{n-1}|$$

b) Use the explicit formula to find the 17th term.

c) Write a recursive formula for the sequence.