

**Secondary Math III**  
**Assignment 11.3**  
**Geometric Sequences**

Name: \_\_\_\_\_  
 Period: \_\_\_\_\_

*Analyze the geometric sequence and find the next three terms (if it is a picture just find the next term). State the common ratio, and then write the recursive and explicit formulas. If the sequence is not geometric state why (you do not need to find anything if it is not geometric).*

1.  $\frac{1}{10}, \frac{1}{100}, \frac{1}{1000}, \underline{\hspace{1cm}}, \underline{\hspace{1cm}}, \underline{\hspace{1cm}}, \dots$

Geometric?      Yes                  No

If not, why?

$r =$

Explicit Formula:

Recursive Formula:

2. -2, -4, -8, -16,  $\underline{\hspace{1cm}}, \underline{\hspace{1cm}}, \underline{\hspace{1cm}}, \dots$

Geometric?      Yes                  No

If not, why?

$r =$

Explicit Formula:

Recursive Formula:

3.  $\frac{1}{4}, -\frac{1}{4}, \frac{1}{4}, -\frac{1}{4}, \underline{\hspace{1cm}}, \underline{\hspace{1cm}}, \underline{\hspace{1cm}}, \dots$

Geometric?      Yes                  No

If not, why?

$r =$

Explicit Formula:

Recursive Formula:

4. 3, 9, 27,  $\underline{\hspace{1cm}}, \underline{\hspace{1cm}}, \underline{\hspace{1cm}}, \dots$

Geometric?      Yes                  No

If not, why?

$r =$

Explicit Formula:

Recursive Formula:



Geometric?      Yes                  No

If not, why?

$r =$

Explicit Formula:

Recursive Formula:

6. 20, 10, 5, 2.5,  $\underline{\hspace{1cm}}, \underline{\hspace{1cm}}, \underline{\hspace{1cm}}, \dots$

Geometric?      Yes                  No

If not, why?

$r =$

Explicit Formula:

Recursive Formula:

**Given a geometric sequence, find the  $a_n$  term.**

7. 8, 4, 2, 1, 0.5, .....

8. -1, 1, -1, 1, -1, .....

$$a_{15} =$$

$$a_{234} =$$

9. 7, 14, 28, 56, .....

10. 6, 24, 96, 384, ...

$$a_{11} =$$

$$a_8 =$$

**11.** Social media has created a way to quickly share information. Gangnam Style is a YouTube video that became popular in July 2012. On September 6<sup>th</sup>, 2012 the clip had 100,000,000 views. On December 21<sup>st</sup>, 2012, the video was the first in history to have over 1,000,000,000 views.

To model viral videos, assume that on day 1 there is one view, and that every new view corresponds to a new person seeing the video and then sharing the video to two new people.

- a. How many times will the video be viewed on day 2? day 3? day 4?  
(Note, this is not the total views, just find how many times it will be watched on day 2, 3 and 4).
  
- b. What type of sequence is this? Write the explicit and recursive formulas for this sequence.
  
- c. How many times will the video be viewed on day 20? (Again, this is not the total views, just how many times it is watched on that day).
  
- d. Does this sequence accurately model the behavior of a viral video? What are the limitations?