

Name: _____

Unit 6: Sequences

Date: _____ Period: _____

Notes: Geometric Sequences

Main Ideas/Questions	Notes	
Geometric Sequences	A sequence in which the pattern of the sequence is being multiplied	
Common Ratio (fraction)	$\frac{2nd\ term}{1st\ term}, \frac{3rd\ term}{2nd\ term}, \frac{4th\ term}{3rd\ term} = \text{common ratio (must all equal the same \#)}$	
Identifying a Geometric Sequence	Determine whether the following represent geometric sequences. If yes, identify the common ratio.	
	1. 2, 10, 50, 250, ...	2. 135, 45, 15, 5, ...
	3. 6, 18, 24, 30, ...	4. 7, -14, 28, -56, ...
	5. 80, -40, 20, -10, ...	6. -9, -36, -144, -576, ...
Continuing Geometric Sequences	Given the geometric sequence, find the next three terms.	
	7. 7, -21, 63, _____, _____, _____	
	8. 3072, 768, 192, _____, _____, _____	
	9. 8, 4, 2, _____, _____, _____	
10. -5, -25, -125, _____, _____, _____		
Geometric Sequence Formula	The n^{th} term of a geometric sequence can be found using the following formula: $a_n = a_1(r)^{n-1}$ where $a_1 = 1^{st}$ term on the list and $r = \text{common ratio}$	

Examples

Write the rule for the n^{th} term, then find a_7 .

11. 3, 9, 27, ...

12. -4, 20, -100, ...

13. 400, 200, 100, ...

14. 1, 5, 25, ...

15. -1, -4, -16, ...

16. 729, -243, 81, ...

17. 6, -12, 24, ...

18. 8, 12, 18, ...

Application

Year	Value (\$)
1	10,000
2	8,000
3	6,400

The table to the left shows a car's value for 3 years after it is purchased.

19. Write a rule to represent the car's depreciation.

20. What will be the value of the car after 10 years?