

Name:	Class:
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Topic:	Date:
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Main Ideas/Questions	Notes
<b>Geometric Sequences</b>	
<b>Common Ratio</b>	
<b>Identifying a Geometric Sequence</b>	<b>Determine whether the following represent geometric sequences. If yes, identify the common ratio.</b>
	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, ...
<b>Continuing Geometric Sequences</b>	<b>Given the geometric sequence, find the next three terms.</b>
	7. 7, -21, 63, _____, _____, _____
	8. 3072, 768, 192, _____, _____, _____
	9. 8, 4, 2, _____, _____, _____
	10. -5, -25, -125, _____, _____, _____
<b>Geometric Sequence Formula</b>	<b>The <math>n^{\text{th}}</math> term of a geometric sequence can be found using the following formula:</b>
<b>Examples</b>	<b>Write the rule for the <math>n^{\text{th}}</math> term, then find <math>a_7</math>.</b>
	11. 3, 9, 27, ...
	12. -4, 20, -100, ...

	<b>13.</b> 400, 200, 100, ...	<b>14.</b> 1, 5, 25, ...
	<b>15.</b> -1, -4, -16, ...	<b>16.</b> 729, -243, 81, ...
	<b>17.</b> 6, -12, 24, ...	<b>18.</b> 8, 12, 18, ...

**Application**

Year	Value (\$)
<b>1</b>	<b>10,000</b>
<b>2</b>	<b>8,000</b>
<b>3</b>	<b>6,400</b>

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

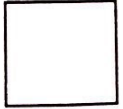
**19.** Write a rule to represent the car's depreciation.

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

**Summary:** \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

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

Unit 6: Exponents & Exponential Functions



Date: \_\_\_\_\_ Bell: \_\_\_\_\_

Homework 9: Geometric Sequences

**Determine whether each sequence is a geometric sequence.  
If yes, identify the common ratio.**

1. 4, 12, 36, 108, ...

2. 5, 10, 15, 20, ...

3. 120, -60, 30, -15, ...

4. 1, -4, 16, -64, ...

5. 50, 35, 20, ...

6. 625, 125, 25, 5, ...

**Find the next three terms of each geometric sequence.**

7. 4, 8, 16, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_

8. 1, -6, 36, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_

9. 486, 162, 54, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_

10. 3, 15, 75, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_

11. 240, -120, 60, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_

12. -5, -20, -80, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_

**Write an equation to find the  $n$ th term of each sequence. Then find  $a_n$ .**

13. 5, 20, 80, ...

14. -2, 10, -50, ...

15. -65536, 16384, -4096, ...

16. 6, -18, 54, ...

17. 1536, 768, 384, ...

18. -1, -7, -49, ...

**A ball is dropped from a height of 500 meters. The table shows the height of each bounce.**

Bounce	Height (m)
1	400
2	320
3	256

19. Write a rule to represent the height of the ball after each bounce.

20. How high does the ball bounce on the 6<sup>th</sup> bounce?