

9C Arithmetic OR Geometric

Name: _____ Per: _____

SHOW YOUR WORK. WORK IN PENCIL

Write the next 3 terms and state if it is arithmetic, geometric, or neither. **If arithmetic or geometric**, answer the following questions. **First term is $f(0)$.**

1) 1, 4, 7, 10, 13, _____, _____, _____

CIRCLE: Arithmetic/Geometric/Neither

Common Difference/Common Ratio: _____

Recursive Equation: _____

Explicit Equation: _____

2) 4, 16, 36, 64, 100, _____, _____, _____

CIRCLE: Arithmetic/Geometric/Neither

Common Difference/Common Ratio: _____

Recursive Equation: _____

Explicit Equation: _____

3) 4, -12, 36, -108, 324, _____, _____, _____

CIRCLE: Arithmetic/Geometric/Neither

Common Difference/Common Ratio: _____

Recursive Equation: _____

Explicit Equation: _____

4) -4.25, -2.75, -1.25, 0.25, _____, _____, _____

CIRCLE: Arithmetic/Geometric/Neither

Common Difference/Common Ratio: _____

Recursive Equation: _____

Explicit Equation: _____

5) 0, 3, 8, 15, 24, _____, _____, _____

CIRCLE: Arithmetic/Geometric/Neither

Common Difference/Common Ratio: _____

Recursive Equation: _____

Explicit Equation: _____

6) 100, 50, 25, _____, _____, _____

CIRCLE: Arithmetic/Geometric/Neither

Common Difference/Common Ratio: _____

Recursive Equation: _____

Explicit Equation: _____

7) 9, 3, 1, $\frac{1}{3}$, $\frac{1}{9}$, _____, _____, _____

CIRCLE: Arithmetic/Geometric/Neither

Common Difference/Common Ratio: _____

Recursive Equation: _____

Explicit Equation: _____

8) Make a 4-column table for #7.

1		9	

Use the explicit equation, find $f(n)$ when $n = 0, 1, 2, 3, 4$.

(Use a table if needed)

9. $f(n) = -2n + 5$

a. $f(0) =$ _____

b. $f(1) =$ _____

c. $f(2) =$ _____

d. $f(3) =$ _____

e. $f(4) =$ _____

10. $f(n) = 2(3^n)$

n	$f(n)$
0	
1	
2	
3	

11. $f(n) = 4(2)^n$

Find each value for the sequence. Tell whether it is **arithmetic or geometric** and write the **recursive equation**.

12. $f(n) = 5(-2)^n$

a. Find $f(3) =$ _____

b. Find $f(4) =$ _____

c. Arithmetic or Geometric

d. Write the recursive equation: _____

13. $f(n) = 5n + 20$

a. Find $f(5) =$ _____

b. Find $f(6) =$ _____

c. Arithmetic or Geometric

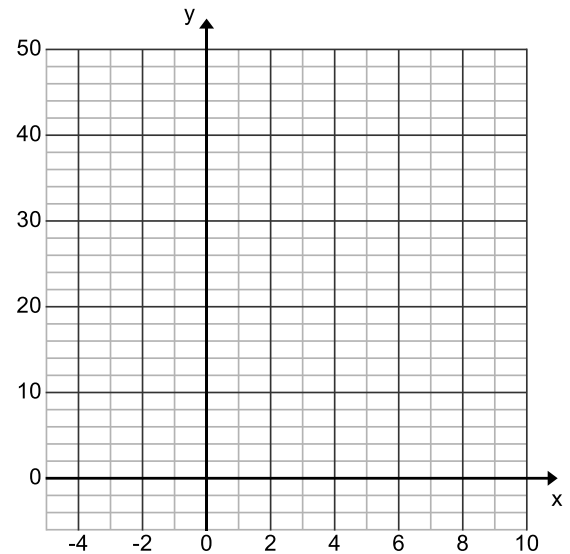
d. Write the recursive equation: _____

14. Mr. and Mrs. Gloop want their son, Augustus, to do his homework each day. Augustus loves to eat candy, so his parents have decided to motivate him to do his homework by giving him candies for each day that the homework is complete. Mr. Gloop says that on the 1st day that Augustus turns in his homework, he will give him 10 candies. On day 2 he promises to give 20 candies, on the third day he will give 30 candies, and so on.

- Would this represent an arithmetic or geometric sequence? _____
- Write both a recursive and an explicit formula that shows the number of candies that Augustus earns on any given day with his father's plan. Rec: $F(x)=$ _____ Exp: $F(x)=$ _____
- Determine how many candies Augustus will receive on day 30 in this plan. How many candies he would eat on day 30? $F(30) =$ _____

15. Augustus's mom is afraid that all that candy will make his weight problem worse, so Augustus tells his parents that he will get only 2 candies on day 1, get 6 candies on day 2, 18 on day 3, and so on as he completes his homework.

- Is this an arithmetic or geometric sequence? _____
- Write both a recursive and an explicit equation of the amount of candy that Augustus would get each day he reaches his goal (of complete his homework) with the new plan.
Rec: $M(x)=$ _____
Exp: $M(x)=$ _____
- Use the explicit formula to predict the number of candies that Augustus would earn on the 30th day with this plan.
 $M(30) =$ _____
- Which plan is better for Augustus to lose weight? _____
Explain why _____
- Graph **BOTH** explicit equations from #15 and #16 to the right.



Complete each of the table and answer the following questions:

<p>16.</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>x</th> <th>y</th> </tr> </thead> <tbody> <tr> <td>2</td> <td>10</td> </tr> <tr> <td>3</td> <td>20</td> </tr> <tr> <td>4</td> <td>40</td> </tr> <tr> <td>5</td> <td></td> </tr> <tr> <td>10</td> <td></td> </tr> </tbody> </table>	x	y	2	10	3	20	4	40	5		10		<p>17.</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>x</th> <th>y</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>16</td> </tr> <tr> <td>2</td> <td>64</td> </tr> <tr> <td>3</td> <td>256</td> </tr> <tr> <td>4</td> <td></td> </tr> <tr> <td>5</td> <td></td> </tr> </tbody> </table>	x	y	1	16	2	64	3	256	4		5		<p>18.</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>x</th> <th>y</th> </tr> </thead> <tbody> <tr> <td>2</td> <td>41</td> </tr> <tr> <td>3</td> <td>32</td> </tr> <tr> <td>4</td> <td>23</td> </tr> <tr> <td>5</td> <td></td> </tr> <tr> <td>10</td> <td></td> </tr> </tbody> </table>	x	y	2	41	3	32	4	23	5		10		<p>19.</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>x</th> <th>y</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>15,625</td> </tr> <tr> <td>1</td> <td>3,125</td> </tr> <tr> <td>2</td> <td>625</td> </tr> <tr> <td>3</td> <td>125</td> </tr> <tr> <td>4</td> <td></td> </tr> </tbody> </table>	x	y	0	15,625	1	3,125	2	625	3	125	4	
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20. Write the following inequality in slope-intercept form: $-2y + 7x - 2 < 3(x + 2)$

- Slope: _____, y-intercept: _____
- Will the boundary line be Solid or Dotted? _____
- Is the point $(3, -1)$ in the solution set? _____ Explain.