9R Sequence REVIEW

Name: _____ Per: _____

PLEASE SHOW YOUR WORK. WORK IN PENCIL

1. For an **arithmetic sequence** you need to find the common _____, written as "d". An _____ sequence increases or _____ at a constant rate by adding or _____ from term to term. The graph of an arithmetic sequence is a _____.

2. For a **geometric sequence** you _____ by a fixed number to find the next term. This is called the common _____, which we represent as "r".

Given the following, write the equations**.**

3. $f(3) = 33, d = 10$

   Recursive Equation:

   _____

   Explicit Equation:

   _____

4. $f(3) = 18, r = 2$

   Recursive Equation:

   _____

   Explicit Equation:

   _____

5. $f(2) = 9, r = \frac{1}{3}$

   Recursive Equation:

   _____

   Explicit Equation:

   _____

Find the given terms for the sequence. Tell whether it is arithmetic or geometric and how you know.

6. Find $f(3)$ and $f(4)$; $f(n) = 5(-2)^n$

7. Find $f(5)$ and $f(6)$; $f(n) = 5n + 20$

Complete the following given the sequences.

8. 4, −4, −12, −20, _____, _____, _____

   Arithmetic, Geometric, or Neither

   Common Difference/Common Ratio: ____

   Recursive Equation:_____

   Explicit Equation:_____

   *Explicit if $f(1) = 12$: _____

9. 27, 9, 3, 1, _____, _____, _____

   Arithmetic, Geometric, or Neither

   Common Difference/Common Ratio: ____

   Recursive Equation:_____

   Explicit Equation:_____

   *Explicit if $f(3) = 27$: _____

10.

0	$1st$	$2nd$	$3rd$	$4th$	$5th$	$6th$
2	10	50	250			

Arithmetic, Geometric, or Neither

Common Difference/Common Ratio: ____

Recursive Equation:_____

Explicit Equation: _____

11.

$1st$	$2nd$	$3rd$	$4th$	$5th$	$6th$	$7th$
4	7	10				

Arithmetic, Geometric, or Neither

Common Difference/Common Ratio: _____

Recursive Equation:_____

Explicit Equation:_____

Given the explicit formula for the **arithmetic sequences find $f(0), f(1), f(2)$ and $f(11)$.**

12. *f(n)* = 13 − 8n

$f(0) =$_____

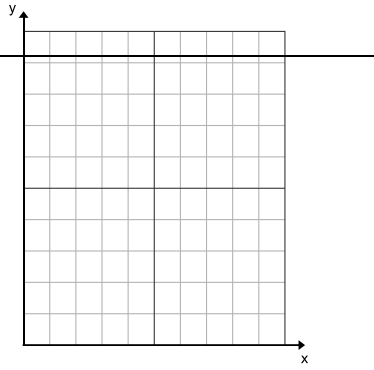
13. *f(n)* = 25 −11n

n	$f(n)$
0	
1	
2	
11	

14. $f(x) = 3(0.75)^x$
    a. CIRCLE: Growth OR Decay
    b. Initial amount _____
    c. Multiplier _____
    d. Find $f(3) =$ _____
    e. Find $f(-1) =$ _____
    f. What is the % of growth/decay _____

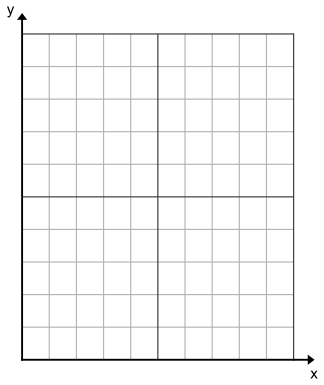
15. $f(x) = 1.5(1.01)^x$
    a. CIRCLE: Growth OR Decay
    b. Initial amount _____
    c. Multiplier _____
    d. Find $f(2) =$ _____
    e. Find $f(-2) =$ _____
    f. What is the % of growth/decay _____

16. Aria takes a loan out to buy a computer and will not make payments for five years. He calculates the balance with this equation.: $f(x) = 1{,}100(1.08)^x$.
    a. Cost of the computer? _____ c. Interest rate? _____
    b. What is the multiplier? _____ d. Geometric or arithmetic?
    e. Make a 4-column table for $f(0), f(1), f(2)$ *and* $f(3)$



    f. Graph the above table on the grid to the right.
    g. What is the balance of debt after 4 years? _____

17. You deposit $1400 from your job with a **simple** interest at 23% annual rate.
    a. Make a table showing the how your total money will grow.



    b. Geometric or arithmetic?
    c. Explicit equation _____
    d. Recursive equation: _____
    e. How much **INTEREST** will you have earned after 4 years? _____
    f. Graph the above table on the grid to the right.
    g. What would be the TOTAL money in your account after 4 years? _____

18. A colony of sloths is 300 miles from Provo. One sloth wants to shop at the mall but only gets closer by 25% of the original distance each day.
    a. Explicit equation for *d* days. _____
    b. Recursive equation. _____
    c. How far from Provo will he be after 2 days?
    d. How many days until the sloth arrives at the mall? _____
    e. What does $f(10)$ represent in the context of the story?_____

19. Strapped for cash, Amber decides to take out a loan for $2,500 from the local Check N Go with an interest rate of 520% that compounds every year.
    a. Explicit equation _____
    b. Recursive equation. _____
    c. Balance after one year? _____
    d. Balance after three years? _____

20. Holly bought a car this year for $15,000 at a 2.85% interest rate compounded yearly. The car's value depreciates by 11% a year.
    a. Write an explicit equation to represent the loan. _____
    b. Write a recursive equation to represent the loan._____
    c. What will be the balance of the loan in 2025? _____
    d. Write an explicit equation to represent the value of car. _____
    e. Write a recursive equation to represent the value of the car. _____
    f. What will the car be worth in 2025?_____