

8R Sequence REVIEW

PLEASE SHOW YOUR WORK. WORK IN PENCIL

Name: _____ Per: _____

Due Date: February 11th / February 12th

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

a. Arithmetic, Geometric, or Neither

b. Common Difference/Common Ratio: _____

c. Recursive Equation: _____

d. Explicit Equation: _____

e. Explicit Eq. if $f(1) = 12$: _____

10.

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

a. Arithmetic, Geometric, or Neither

b. Common Difference/Common Ratio: _____

c. Recursive Equation: _____

d. Explicit Equation: _____

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

a. Arithmetic, Geometric, or Neither

b. Common Difference/Common Ratio: _____

c. Recursive Equation: _____

d. Explicit Equation: _____

e. Explicit Eq. if $f(3) = 27$: _____

11.

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

a. Arithmetic, Geometric, or Neither

b. Common Difference/Common Ratio: _____

c. Recursive Equation: _____

d. 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	

Complete the following information from the explicit equations.

14. $f(x) = (3)0.75^x$

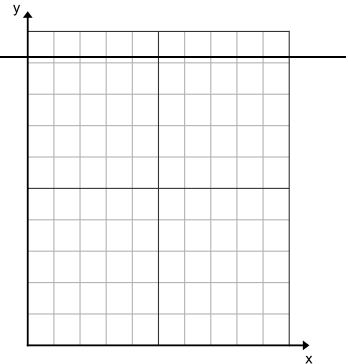
- a. CIRCLE: Growth OR Decay
- b. Initial amount _____
- c. Common Ratio/Multiplier _____
- d. Find $f(3) =$ _____ Find $f(-1) =$ _____
- e. What is the % of growth/decay _____

15. $f(x) = 1.5(1.01)^x$

- a. CIRCLE: Growth OR Decay
- b. Initial amount _____
- c. Common Ratio/Multiplier _____
- d. Find $f(2) =$ _____ Find $f(-2) =$ _____
- e. 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? _____
- b. What is the common ratio? _____
- c. Interest rate? _____
- 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 5 years? _____

17. You deposit \$1400 from your job with a **simple** interest at 23% annual rate.

- a. Geometric or arithmetic? _____
- b. What is it changing by each year (d or r)? _____
- c. Explicit equation _____
- d. Recursive equation: _____
- e. How much **TOTAL INTEREST** will you have earned after 4 years? _____
- f. 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 is $f(10) =$ _____. What does it represent? _____

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 and takes out a loan for \$15,000 at a 2.85% interest rate yearly. The car's value depreciates by 11% a year.

- a. Write an explicit equation. to represent the loan if **compound** yearly. _____
- b. Write a recursive equation to represent the loan if **compound** yearly. _____
- c. What will be the balance of the loan in 2025 with the compound rate? _____
- d. Write an explicit equation to represent the loan if it's **SIMPLE** interest. _____
- e. Write a recursive eq. to represent the loan if it's **SIMPLE** yearly. _____
- f. What will be the balance of the loan in 2025 with the **SIMPLE** rate? _____
- g. Write an explicit equation to represent the value of car. _____
- h. Write a recursive equation to represent the value of the car. _____
- i. What will the car be worth in 2025? _____