

1. Which sequence below represents an exponential sequence?

- a. 6, 12, 18, 24, ...
- b. 6, 11, 17, ...
- c. 2, 14, 98, 686, ...

2. Which equation represents a geometric sequence?

- a. $y = 2x - 3$
- b. $y = x^2 + 4x + 3$
- c. $y = 3^x + 3$

3. Which equation below will produce a decay curve?

- a. $y = 2(1.03)^x$
- b. $y = 3^x + 2$
- c. $y = \frac{1}{3}(2)^x$
- d. $y = 2\left(\frac{1}{3}\right)^x$

4. Rachel invested \$4000 into an account that has a 3.5% annual interest rate. Write an equation best describes this investment after t years?

5. A photocopier is purchased for \$7200 and it depreciates in value by 15% per year. Write an equation that best describes the value of the photocopier in t years?

6. Write an equation for the relationship below?

x	0	1	2	3
y	2/9	2	18	162

7. For the equation $y = 3.5^x - 6$,

- a) What is the equation for the horizontal asymptote?
- b) What is the y-intercept?

8. A coffee is sitting on Mr. Hunt's desk cooling. It cools according to the function $T = 75(0.98)^x + 20$ where x is the time in minutes and T is the temperature in degrees.

- A) What is the initial temperature of the coffee?
- B) What is the temperature after 10 minutes?

Determine the missing terms by finding the common ratio or difference. Write the explicit formula, recursive formula, and calculate the n^{th} term for each.

9) $\{7, -21, 63, \underline{\hspace{1cm}}, \underline{\hspace{1cm}}, \underline{\hspace{1cm}} \dots$

Common Ratio: $\underline{\hspace{2cm}}$

Recursive Function: $\underline{\hspace{2cm}}$

Explicit Formula: $\underline{\hspace{2cm}}$

Find the 12th Term: $\underline{\hspace{2cm}}$

10) $\{36, 31, 26, \underline{\hspace{1cm}}, \underline{\hspace{1cm}}, \underline{\hspace{1cm}} \dots$

Common Difference: $\underline{\hspace{2cm}}$

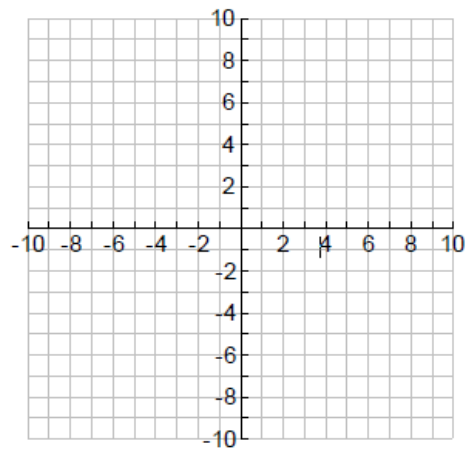
Recursive Formula: $\underline{\hspace{2cm}}$

Explicit Formula: $\underline{\hspace{2cm}}$

Find the 12th Term: $\underline{\hspace{2cm}}$

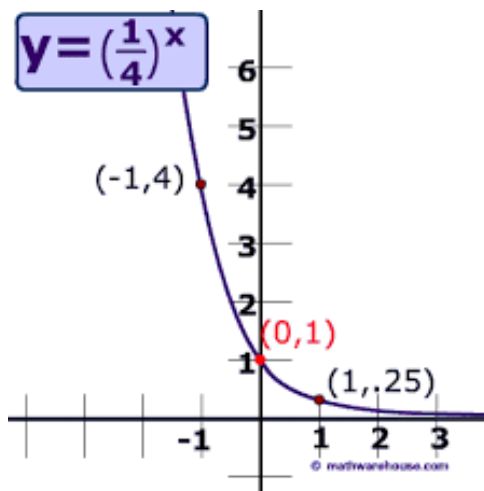
11. Complete the table of values and graph the following equation: $y = 1.5^x - 6$

x	Y
-2	
-1	
0	
1	
2	
3	



12. $y = (1/4)^x$

x	Y
-2	16
-1	4
0	1
1	1/4
2	1/16
3	1/64



A) Identify the exponential function as growth or decay:

B) Identify the common ratio:

C) Identify the y-intercept:

D) State the equation of the asymptote:

E) State the domain:

F) State the range:

G) $f(-3) = \underline{\hspace{1cm}}$

13. Use the two given functions to choose the best statement comparing the graphs to each other.

Function 1: $y = 2^x$

Function 2: $y = -2^x - 4$

- A. Function 2's graph is reflected then shifted down 4 from Function 1's graph.
- B. Function 2's graph is reflected then shifted up 4 from Function 1's graph.
- C. Function 2's graph is reflected then shifted left 4 from Function 1's graph.
- D. Function 2's graph is reflected then shifted right 4 from Function 1's graph

14. Explain what happened if function 1 was $f(x) = -3x + 2$ was transformed to $f(x) = -3x - 4$.

15. Tommy bought a new sports car for \$50 000. It depreciates annually by 20% per year.

A) Fill in the table below:

Year	0	1	2	3	4
Value of Car \$	50000				

B) What is the common ratio?

C) What is the exponential function that describes the above data?

D) Using your equation in c, find how much will the car be worth in 6 years (show workings).

E) Use your calculator to find when it will be worth \$10,486?

16. Tara earns \$42,000 during the first year at her job. Each year after the first year, she will receive a raise of 7%.

A) Write the equation of a function S that gives Tara's salary as a function of the number of years, x , after she started her job.

B) Use the function from Part A to determine Tara's salary after 4 years. Show your work or explain your answer.