



Name _____ Period _____ Date _____

READY

Topic: Distinguishing between arithmetic and geometric sequences

Find the missing values for each arithmetic or geometric sequence. Underline whether it has a constant difference or a constant ratio. State the value of the constant difference or ratio. Indicate if the sequence is arithmetic or geometric by circling the correct answer.

1. 5, 10, 15, 20, 25, 30, ~~35~~...

Common difference or ratio?

Common Difference/ratio = +5

Arithmetic or geometric?

2. 20, 10, 5, 2.5, 1.25.

Common difference or ratio?

Common Difference/ratio = $\frac{1}{2}$

Arithmetic or geometric?

3. 2, 5, 8, 11, 14, 17 ...

Common difference or ratio?

Common Difference/ratio = +3

Arithmetic or geometric?

4. 30, 24, 18, 12, 6, ...

Common difference or ratio?

Common Difference/ratio = -6

Arithmetic or geometric?

SET

Topic: Recursive and explicit equations

Determine whether the given information represents an arithmetic or geometric sequence. Then write the recursive and the explicit equation for each.

5. $\begin{matrix} +2 \\ \uparrow \\ 2, 4, 6, 8, \dots \end{matrix}$

Arithmetic or geometric?

Recursive: $F(n) = 2, F(n) = F(n-1) + 2$

Explicit: $F(n) = 2 + 2(n-1)$
 $F(n) = 2n$

6. $\begin{matrix} \cdot 2 \\ \uparrow \\ 2, 4, 8, 16, \dots \end{matrix}$

Arithmetic or geometric?

Recursive: $F(n) = 2, F(n) = 2F(n-1)$

Explicit: $F(n) = 2(2)^{n-1}$
 $F(n) = 2^n$

7.

Time (in days)	Number of dots
1	3
2	7
3	11
4	15

+4
+4
+4

Arithmetic or geometric?

Recursive: $f(1) = 3$ $f(n) = f(n-1) + 4$

Explicit: $f(n) = 3 + 4(n-1)$
 $f(n) = 4n - 1$

8.

Time (in days)	Number of cells
1	5
2	8
3	12.8
4	20.48

x 1.6
x 1.6
x 1.6

Arithmetic or geometric?

Recursive: $f(1) = 5$ $f(n) = 1.6 f(n-1)$

Explicit: $f(n) = 5(1.6)^{(n-1)}$

3 bars / 5 days = $\frac{3}{5}$

9. Michelle likes chocolate but it causes acne. She chooses to limit herself to three chocolate bars every 5 days. (So, she eats part of a bar each day.)

D	Bar
1	$\frac{3}{5}$
2	1.2
3	1.8
4	2.4
5	3

Arithmetic or geometric?

Recursive: $f(1) = \frac{3}{5}$ $f(n) = f(n-1) + \frac{3}{5}$

Explicit: $f(n) = \frac{3}{5} + \frac{3}{5}(n-1)$
 $f(n) = \frac{3}{5}n$

10. Scott decides to add running to his exercise routine and runs a total of one mile his first week. He plans to double the number of miles he runs each week.

week	miles
1	1 $\times 2$
2	2 $\times 2$
3	4
4	8
5	16
6	32

Arithmetic or geometric?

Recursive: $f(1) = 1$ $f(n) = 2 f(n-1)$

Explicit: $f(n) = 1(2)^{(n-1)}$

Ride	\$
0	60
1	56
2	52
3	48
4	44

11. Vanessa has \$60 to spend on rides at the state fair. Each ride costs \$4.

Arithmetic or geometric?

Recursive: $f(0) = 60$ $f(n) = f(n-1) - 4$

Explicit: $f(n) = 60 - 4(n-1)$

12. Cami invested \$6,000 into an account that earns 10% interest each year. (Hint: Make a table of values to help yourself.)

Year	\$
0	6000 $\times 1.1$
1	6600
2	7260
3	7986

Arithmetic or geometric?

Recursive: $f(0) = 6000$ $f(n) = 1.1 f(n-1)$

Explicit: $f(n) = 6000(1.1)^n$