

READY, SET, GO!

Name _____

Period _____

Date _____

READY

For each set of sequences, find the first five terms. Then compare the growth of the arithmetic sequence and the geometric sequence. Which grows faster?

1. Arithmetic sequence: $f(1) = 2$,
common difference, $d = 3$
Geometric sequence: $g(1) = 2$,
common ratio, $r = 3$

Arithmetic	Geometric
$f(1) =$	$g(1) =$
$f(2) =$	$g(2) =$
$f(3) =$	$g(3) =$
$f(4) =$	$g(4) =$
$f(5) =$	$g(5) =$

Which value do you think will be more, $f(100)$ or $g(100)$?

Why?

2. Arithmetic sequence: $f(1) = 2$,
common difference, $d = 10$
Geometric sequence: $g(1) = 128$,
common ratio, $r = \frac{1}{2}$

Arithmetic	Geometric
$f(1) =$	$g(1) =$
$f(2) =$	$g(2) =$
$f(3) =$	$g(3) =$
$f(4) =$	$g(4) =$
$f(5) =$	$g(5) =$

Which value do you think will be more, $f(100)$ or $g(100)$?

Why?

3. Arithmetic sequence: $f(1) = 20$,
 $d = 10$
Geometric sequence: $g(1) = 2$, $r = 2$

Arithmetic	Geometric
$f(1) =$	$g(1) =$
$f(2) =$	$g(2) =$
$f(3) =$	$g(3) =$
$f(4) =$	$g(4) =$
$f(5) =$	$g(5) =$

Which value do you think will be more, $f(100)$ or $g(100)$?

Why?

4. Arithmetic sequence: $f(1) = 50$,
common difference, $d = -10$
Geometric sequence: $g(1) = 1$,
common ratio, $r = 2$

Arithmetic	Geometric
$f(1) =$	$g(1) =$
$f(2) =$	$g(2) =$
$f(3) =$	$g(3) =$
$f(4) =$	$g(4) =$
$f(5) =$	$g(5) =$

Which value do you think will be more, $f(100)$ or $g(100)$?

Why?

5. Arithmetic sequence: $f(1) = 64$,
common difference, $d = -2$
Geometric sequence: $g(1) = 64$,
common ratio, $r = \frac{1}{2}$

Arithmetic	Geometric
$f(1) =$	$g(1) =$
$f(2) =$	$g(2) =$
$f(3) =$	$g(3) =$
$f(4) =$	$g(4) =$
$f(5) =$	$g(5) =$

Which value do you think will be more, $f(100)$ or $g(100)$?

Why?

6. Considering arithmetic and geometric sequences, would there ever be a time that a geometric sequence does not out grow an arithmetic sequence in the long run as the number of terms of the sequences becomes really large? Explain.

SET

Each of the tables below represents a geometric sequence. Find the missing terms in the sequence. Show your method.

7. Table 1

x	1	2	3
y	3		12

8. Table 2

x	y
1	2
2	
3	
4	54

9. Table 3

x	y
1	5
2	
3	20
4	

10. Table 4

x	y
1	4
2	
3	
4	
5	324

GO

Given the following information, determine the explicit equation for each geometric sequence.

11. $f(1) = 8$, common ratio $r = 2$

13. $f(n) = 4f(n - 1)$; $f(1) = \frac{5}{3}$

12. $f(1) = 4$, $f(n) = 3f(n - 1)$

14. Which geometric sequence from #11-13 has the greatest value at $f(100)$?