Name: Sequences | 3.9

Ready, Set, Go!

Ready

Topic: Arithmetic and geometric sequences

For each set of sequences, find the first five terms. Compare arithmetic sequences and geometric sequences. Which grows faster? When?

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: $g(1) = 2$, 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?

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

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

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

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

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

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

5. Compare arithmetic sequences and geometric sequences growth rates. Which grows faster? When?

Set

Topic: Geometric sequences

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

6. Table 1

x	1	2	3
y	3		12

7. Table 2

x	y
1	2
2	
3	
4	54

8. Table 3

x	y
1	5
2	
3	20
4	

9. Table 4

x	y
1	4
2	
3	
4	
5	324

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Go

Topic: Explicit equations of geometric equations

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

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

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

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

13. Which geometric sequence above has the greatest value at $f(100)$?

Need Help? Check out these videos:

Geometric sequence http://www.khanacademy.org/math/algebra/ck12-algebra-1/v/geometric-sequences--introduction