

## Ready, Set, Go!



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## Ready

Topic: Arithmetic and geometric sequences

For each set of sequences, find the first five terms. Compare arithmetic sequences and geometric sequences. Use the given information to help explain how they are similar and how they are different. 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: |
|-------------|------------|
| $f(1) =$    | $g(1) =$   |
| $f(2) =$    | $g(2) =$   |
| $f(3) =$    | $g(3) =$   |
| $f(4) =$    | $g(4) =$   |
| $f(5) =$    | $g(5) =$   |

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

2. Arithmetic sequence:  $h(1) = 2$ , common difference,  $d = 10$   
 Geometric sequence:  $d(1) = 2$ , common ratio,  $r = 3$
- | Arithmetic: | Geometric: |
|-------------|------------|
| $h(1) =$    | $d(1) =$   |
| $h(2) =$    | $d(2) =$   |
| $h(3) =$    | $d(3) =$   |
| $h(4) =$    | $d(4) =$   |
| $h(5) =$    | $d(5) =$   |

Whose value do you think will be more  $h(100)$  or  $d(100)$ ? Why?

3. Arithmetic sequence:  $f(1) = 20$ ,  $d = 10$   
 Geometric sequence:  $h(1) = 2$ ,  $r = 2$
- | Arithmetic: | Geometric: |
|-------------|------------|
| $f(1) =$    | $h(1) =$   |
| $f(2) =$    | $h(2) =$   |
| $f(3) =$    | $h(3) =$   |
| $f(4) =$    | $h(4) =$   |
| $f(5) =$    | $h(5) =$   |

Whose value do you think will be more  $f(100)$  or  $h(100)$ ? Why?

4. Arithmetic sequence:  $k(1) = 50$ , common difference,  $d = 10$   
 Geometric sequence:  $f(1) = 1$ , common ratio,  $r = 2$
- |             |            |
|-------------|------------|
| Arithmetic: | Geometric: |
| $k(1) =$    | $f(1) =$   |
| $k(2) =$    | $f(2) =$   |
| $k(3) =$    | $f(3) =$   |
| $k(4) =$    | $f(4) =$   |
| $k(5) =$    | $f(5) =$   |

Whose value do you think will be more  $k(100)$  or  $f(100)$ ? 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



**Go**

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

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>

