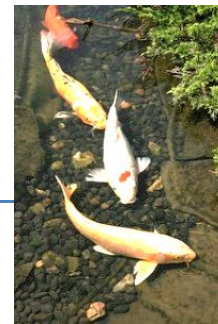


## 3.7 What Comes Next? What Comes Later?

### *A Practice Understanding Task*



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For each of the following tables,

- describe how to find the next term in the sequence,
- write a recursive rule for the function,
- describe how the features identified in the recursive rule can be used to write an explicit rule for the function, and
- write an explicit rule for the function.
- identify if the function is arithmetic, geometric or neither

*Example:*

$x$	$y$
0	5
1	8
2	11
3	14
4	?
...	...
$n$	?

- To find the next term: add 3 to the previous term
- Recursive rule:  $f(0) = 5, f(n) = f(n - 1) + 3$
- To find the  $n^{\text{th}}$  term: start with 5 and add 3  $n$  times
- Explicit rule:  $f(n) = 5 + 3n$
- Arithmetic, geometric, or neither? Arithmetic

Function A

$x$	$y$
1	5
2	10
3	20
4	40
5	?
...	...
$n$	?

1. To find the next term: \_\_\_\_\_
2. Recursive rule: \_\_\_\_\_
3. To find the  $n^{\text{th}}$  term: \_\_\_\_\_
4. Explicit rule: \_\_\_\_\_
5. Arithmetic, geometric, or neither? \_\_\_\_\_

$x$	$y$
0	3
1	4
2	7
3	12
4	19
5	?
...	...
$n$	?

Function B

6. To find the next term: \_\_\_\_\_
7. Recursive rule: \_\_\_\_\_
8. To find the  $n^{\text{th}}$  term: \_\_\_\_\_
9. Explicit rule: \_\_\_\_\_
10. Arithmetic, geometric, or neither? \_\_\_\_\_



$x$	$y$
1	3
2	5
3	9
4	17
5	33
6	?
...	...
$n$	?

### Function C

- To find the next term: \_\_\_\_\_
- Recursive rule: \_\_\_\_\_
- To find the  $n^{\text{th}}$  term: \_\_\_\_\_
- Explicit rule: \_\_\_\_\_
- Arithmetic, geometric, or neither? \_\_\_\_\_

$x$	$y$
1	-8
2	-17
3	-26
4	-35
5	-44
6	-53
...	...
$n$	

### Function D

- To find the next term: \_\_\_\_\_
- Recursive rule: \_\_\_\_\_
- To find the  $n^{\text{th}}$  term: \_\_\_\_\_
- Explicit rule: \_\_\_\_\_
- Arithmetic, geometric, or neither? \_\_\_\_\_

$x$	$y$
1	2
2	-6
3	18
4	-54
5	162
6	-486
...	...
$n$	

### Function E

- To find the next term: \_\_\_\_\_
- Recursive rule: \_\_\_\_\_
- To find the  $n^{\text{th}}$  term: \_\_\_\_\_
- Explicit rule: \_\_\_\_\_
- Arithmetic, geometric, or neither? \_\_\_\_\_

$x$	$y$
0	1
1	$1\frac{3}{5}$
2	$2\frac{1}{5}$
3	$2\frac{4}{5}$
4	$3\frac{2}{5}$
5	4
...	...
$n$	

### Function F

- To find the next term: \_\_\_\_\_
- Recursive rule: \_\_\_\_\_
- To find the  $n^{\text{th}}$  term: \_\_\_\_\_
- Explicit rule: \_\_\_\_\_
- Arithmetic, geometric, or neither? \_\_\_\_\_



x	y
1	10
2	$\frac{2}{5}$
3	$\frac{2}{25}$
4	$\frac{2}{125}$
5	$\frac{2}{625}$
...	...
$n$	

### Function G

36. To find the next term: \_\_\_\_\_
37. Recursive rule: \_\_\_\_\_
38. To find the  $n^{\text{th}}$  term: \_\_\_\_\_
39. Explicit rule: \_\_\_\_\_
40. Arithmetic, geometric, or neither? \_\_\_\_\_

$x$	$y$
1	-1
2	0.2
3	-0.04
4	0.008
5	-0.0016
6	0.00032
...	...
$n$	

### Function H

31. To find the next term: \_\_\_\_\_
32. Recursive rule: \_\_\_\_\_
33. To find the  $n^{\text{th}}$  term: \_\_\_\_\_
34. Explicit rule: \_\_\_\_\_
35. Arithmetic, geometric, or neither? \_\_\_\_\_

