



1.8 What Comes Next? What Comes Later?

A Practice Understanding Task

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^{th} term: start with 5 and add 3 n times
- Explicit rule: $f(n) = 5 + 3n$
- Arithmetic, geometric, or neither? Arithmetic

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

Function A

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

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

Function B

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

x	y
1	3
2	15
3	27
4	39
5	51
6	?
...	...
n	?

Function C

11. To find the next term: _____
12. Recursive rule: _____
13. To find the n^{th} term: _____
14. Explicit rule: _____
15. Arithmetic, geometric, or neither? _____

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

Function D

16. To find the next term: _____
17. Recursive rule: _____
18. To find the n^{th} term: _____
19. Explicit rule: _____
20. 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 E

21. To find the next term: _____
22. Recursive rule: _____
23. To find the n^{th} term: _____
24. Explicit rule: _____
25. Arithmetic, geometric, or neither? _____

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

Function F

26. To find the next term: _____
27. Recursive rule: _____
28. To find the n^{th} term: _____
29. Explicit rule: _____
30. 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

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

Function H

36. To find the next term: _____
37. Recursive rule: _____
38. To find the n^{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	