

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

Function A

1. How 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	5
2	10
3	20
4	40
5	?
...	...
n	?



Function B

6. How 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	-8
2	-17
3	-26
4	-35
5	-44
6	-53
...	...
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
1	3
2	15
3	27
4	39
5	51
6	?
...	...
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	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

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
0	3
1	4
2	7
3	12
4	19
5	?
...	...
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? _____

x	y
1	10
2	2
3	$\frac{2}{5}$
4	$\frac{2}{25}$
5	$\frac{2}{125}$
6	$\frac{2}{625}$
...	...
n	

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	

READY, SET, GO!

Name _____

Period _____

Date _____

READY

Topic: Common Ratios

Find the common ratio for each geometric sequence.

1. 2, 4, 8, 16...

2. $\frac{1}{2}, 1, 2, 4, 8...$

3. -5, 10, -20, 40...

4. 10, 5, 2.5, 1.25...

SET

Topic: Recursive and explicit equations

Fill in the blanks for each table; then write the recursive and explicit equation for each sequence.

5. Table 1

x	1	2	3	4	5
y	5	7	9		

Recursive: _____ Explicit: _____

6. Table 2

x	y
1	-2
2	-4
3	-6
4	
5	

Recursive:

Explicit:

7. Table 3

x	y
1	3
2	9
3	27
4	
5	

Recursive:

Explicit:

8. Table 4

x	y
1	27
2	9
3	3
4	
5	

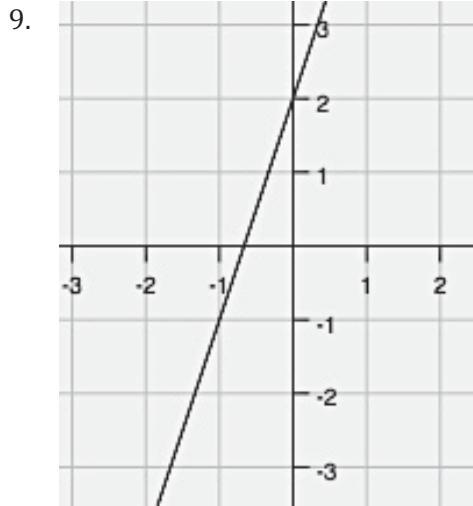
Recursive:

Explicit:

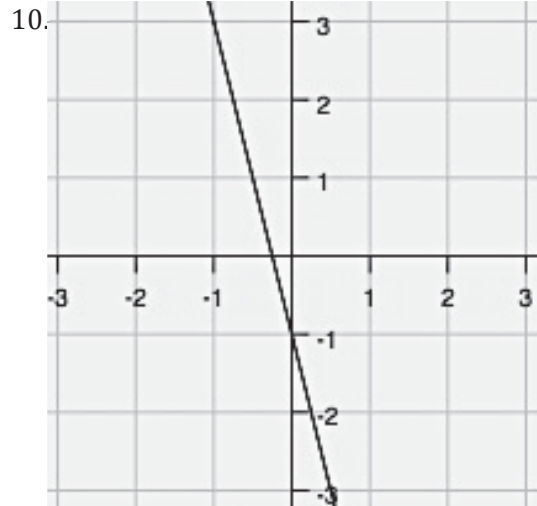
GO

Topic: Writing equations of lines given a graph.

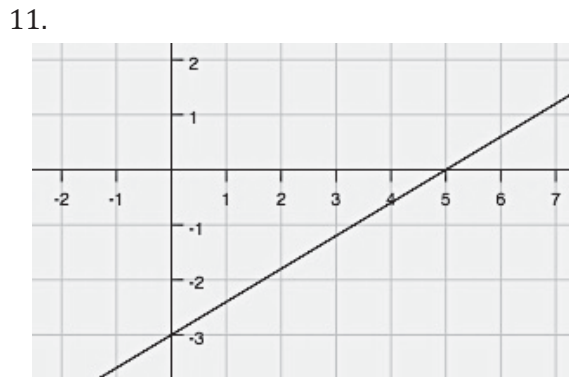
Write each equation of the line in $y = mx + b$ form. Name the value of m and b .
Recall that m is the slope or rate of change and b is the y -intercept.



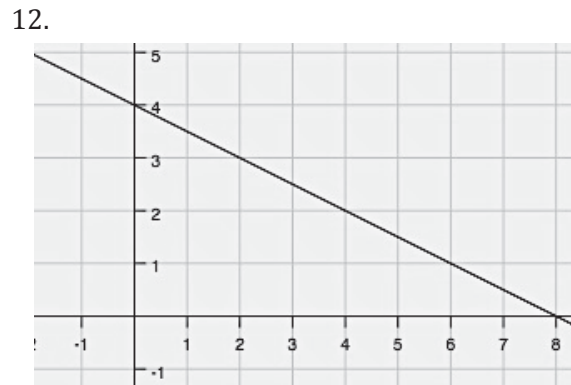
$m =$ $b =$ Equation:



$m =$ $b =$ Equation:



$m =$ $b =$ Equation:



$m =$ $b =$ Equation: