Math 1 Module 3 Practice Problems

Name_____ **Per** _____

Match each item on the left with a *different representation* from the *same sequence* on the right.

____1. $3, 5, 7, 9, 11, \ldots$

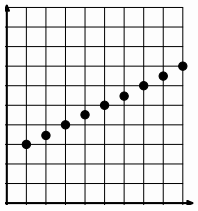
____2.

x	$f(x)$
1	3
2	1
3	-1
4	-3
5	-5

___3. $f(1) = 6$
$f(x) = f(x-1) \times 2$

____4. $f(x) = 6 \cdot \left(\frac{1}{2}\right)^x$

____5.



a. $3, \frac{3}{2}, \frac{3}{4}, \frac{3}{8}, \frac{3}{16}, \ldots$

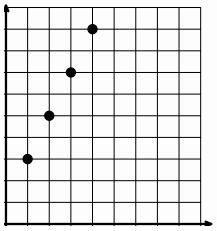
b.

x	$f(x)$
1	3
2	3.5
3	4
4	4.5
5	5

c. $f(1) = 3$
$f(x) = f(x-1) - 2$

d. $f(x) = 3 \cdot 2^x$

e.



6. What are the recursive and explicit functions that describes the sequence: $1, 5, 9, 13, 17, \ldots$? Assume that 1 is the first term of the sequence.

7. What are the recursive and explicit functions that describes the sequence: $33, 11, \frac{11}{3}, \frac{11}{9}, \frac{11}{27}, \ldots$? Assume that 33 is the first term of the sequence.

8. Which recursive function best matches the explicit function: $f(x) = 3 - 2(x - 1)$?

a. $f(1) = 3, f(x) = f(x - 1) + 5$

c. $f(1) = 3, f(x) = f(x - 1) - 2$

b. $f(1) = 1, f(x) = f(x - 1) - 2$

d. $f(1) = 1, f(x) = f(x - 1) \times -2$

9. Which explicit function best matches the recursive function $f(1) = -4, f(x) = f(x - 1) + 4$?

a. $f(x) = -4 + 4(x - 1)$

c. $f(x) = 4x$

b. $f(x) = -4 + 4x$

d. $f(x) = 4 - 4(x - 1)$

10. Which sequence best matches the explicit function: $f(x) = 3 \cdot (-2)^x$

a. $6, -12, 24, -48, 96$

c. $-6, 12, -24, 48, -96$

b. $-2, -6, -18, -54, -162$

d. $-\frac{3}{2}, -2, -18, -54$

11. Write the terms of the sequence represented by the equation $f(x) = -4 + 3x$

Term 1	**Term 2**	**Term 3**	**Term 4**	**Term 5**

12. What are the recursive and explicit functions that describes the sequence: $1, 2, 4, 8, 16, \ldots$

13. Find the missing terms in each table (show all work for credit):

a. The sequence is arithmetic

x	1	2	3	4	5	6	7
f(x)	9						−9

b. The sequence is geometric

x	1	2	3	4	5	6
f(x)	4					972

14. Use the image below to answer the following questions.

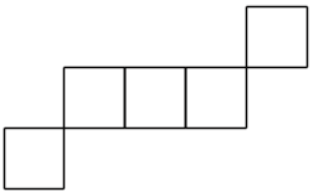


Figure 1

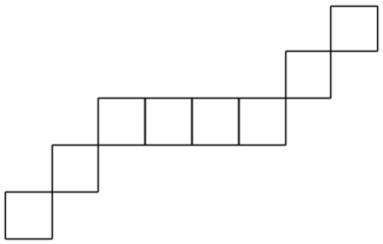


Figure 2

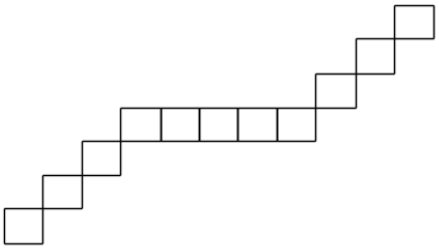


Figure 3

Use the given information to state as much as possible about the sequence above. Your answer should include: type of sequence, the common difference or common ratio, a table of at least 5 terms, a graph, the recursive rule, and the explicit rule.

Type of Sequence:

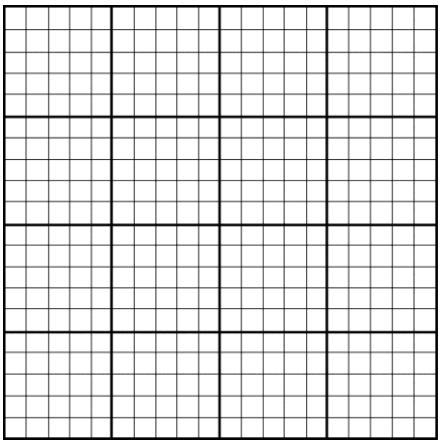
Common difference/ratio:

x	*f(x)*

Recursive rule:

Explicit rule:

Graph (label and scale):



How many tiles are in figure 225?

Challenge Problem: The equation below represents part of a recursive function that describes a sequence where f(x) represents the amount of money in Serena's account (in dollars) and x represents the number of weeks. If Serena has $50 in her account during Week 3, how much money will Serena have on Week 13?

f(x) = f(x-1) +14