

# Homework: Recursive Patterns

1) Write a NOW-NEXT & formal recursive equation for each sequence. Then use your equation to find the 5<sup>th</sup> term of each sequence.

a. 2, -8, 32, ...

$a_1$ : \_\_\_\_\_  
 $a_5$ : \_\_\_\_\_

NOW-NEXT EQUATION: \_\_\_\_\_  
Formal Recursive: \_\_\_\_\_

2) Use the given table to answer the following questions:

a)  $a_0 =$  \_\_\_\_\_      b)  $a_1 =$  \_\_\_\_\_

b) Now-Next form: Next = Now - 3

c) Formal Recursive Notation:  $a_n = a_{n-1} - 3$

d) Which term has a value of -20? (Write as  $a_1$  or  $a_2$ , etc.) 10<sup>th</sup> term

$a_{10}$

Term	Value
1	7
2	4
3	1
4	-2
5	-5
6	-8
7	-11
8	-14
9	-17
10	-20

↘ -3  
↘ -3

3) Consider the figure to the right:

Term	Perimeter
1	3
2	5
3	7
4	
5	



Figure 1

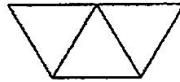


Figure 2

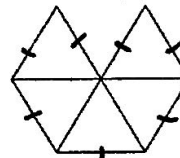


Figure 3

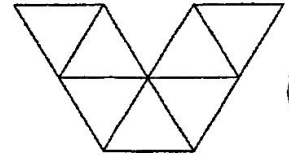


Figure 4

a) Complete the table above for the first five figures.

b) Write a NOW-NEXT equation to find the perimeter of each figure: \_\_\_\_\_

c) Formal Recursive Notation: \_\_\_\_\_

d) Find the perimeter of the 10<sup>th</sup> figure. \_\_\_\_\_

e) Which number figure has a perimeter of 51? \_\_\_\_\_

4) Use the given table to answer the following questions:

Term	Value
1	324
2	108
3	36
4	12
5	4

a)  $a_0$ : \_\_\_\_\_       $a_1$ : \_\_\_\_\_

b) Now-Next form: \_\_\_\_\_

c) Formal Recursive Notation: \_\_\_\_\_