

Lesson 10 Practice Problems

1. A sequence is defined by $f(0) = 3$, $f(n) = 2 \cdot f(n - 1)$ for $n \geq 1$. Write a definition for the n^{th} term of f .
2. A geometric sequence, $g(n)$ starts 20, 60, . . . Define g recursively and for the n^{th} term.
3. A geometric sequence g starts at 500 and has a growth factor of 0.6. Sketch a graph of g showing the first 5 terms.

(From Unit 1, Lesson 7.)

4.
 - a. An arithmetic sequence has $a(1) = 4$ and $a(2) = 16$. Explain or show how to find the value of $a(15)$
 - b. A geometric sequence has $g(0) = 4$ and $g(1) = 16$. Explain or show how to find the value of $g(15)$.

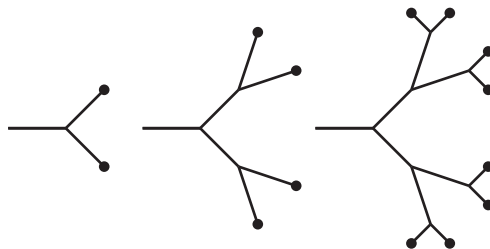
(From Unit 1, Lesson 8.)

5. A piece of paper has an area of 96 square inches.
 - a. Complete the table with the area of the piece of paper $A(n)$, in square inches, after it is folded in half n times.
 - b. Define A for the n^{th} term.
 - c. What is a reasonable domain for the function A ? Explain how you know.

n	$A(n)$
0	96
1	
2	
3	

(From Unit 1, Lesson 9.)

6. Here is a growing pattern:



- Describe how the number of dots increases from Stage 1 to Stage 3.
- Write a definition for sequence D , so that $D(n)$ is the number of dots in Stage n .
- Is D a geometric sequence, an arithmetic sequence, or neither? Explain how you know.

(From Unit 1, Lesson 9.)

7. A paper clip weighs 0.5 grams and an empty envelope weighs 6.75 grams.

- Han adds paper clips one at a time to an empty envelope. Complete the table with the weight of the envelope $w(n)$, in grams, after n paper clips have been added.
- Does $w(10.25)$ make sense? Explain how you know.

n	$w(n)$
0	6.75
1	
2	
3	

(From Unit 1, Lesson 9.)