Geometry Honors
Unit 1: Geometry Essentials
1.3 Inductive Reasoning

Mathematician: _____
Period:_____

LEVEL: EMERGING

Directions: Find the next term in the sequence.

1) 1, 7.7, 14.4, 21.1, 27.8,

→ _____

2) 4, 8, 16, 32, …

→ _____

3) 0, 5, 19.5, 43.5, 77, ….

$6th\ term$: _____
$7th\ term$: _____

4) $8, 1, -6, -13, -20, \ldots$

$6th\ term$: _____
$7th\ term$: _____

5) $2, 1, 6, 23, 58, 117, \ldots$

n = 7: _____

6) $-39, -14, -3, 0, 1, 6, 21, \ldots$

n = 8: _____

LEVEL: PROFICIENT

Directions: Identify the common difference and type of function. Then find the indicated term in the sequence.

7) $\frac{3}{4}, \frac{19}{20}, \frac{23}{20}, \frac{27}{20}, \frac{31}{20}, \ldots$

Common Difference: _____
Type: Linear/Quadratic/Cubic
7th term: _____

8)

x	y
1	3
2	17
3	55
4	129
5	251

Common Difference: _____
Type: Linear/Quadratic/Cubic
6th term: _____

9) 17, 27, 39, 53, …

Common Difference: _____
Type: Linear/Quadratic/Cubic
6th term: _____

10) 2, 9, 28, 65, 126 …

Common Difference: _____
Type: Linear/Quadratic/Cubic
6th term: _____

Directions: Use the diagram to answer the following questions.

11)

Original Iteration 1 Iteration 2

a) There are 5 squares for $n = 1$, 8 squares for $n = 2$, and 13 squares for $n = 3$. How many squares are there for $n = 4$?

Answer: _____

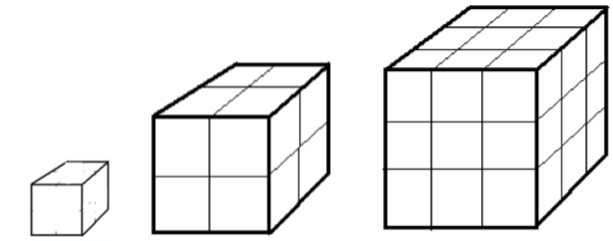
b) Sketch the squares for $n = 4$.

Answer: _____

c) How many squares are there for $n = 6$?

Answer: _____

12)



Original Iteration 1 Iteration 2

a) There is 1 cube for $n = 1$, 8 cubes for $n = 2$, and 27 cubes for $n = 3$. How many cubes are there for $n = 4$?

Answer: _____

b) Sketch the cubes for $n = 4$.

Answer: _____

c) How many cubes are there for $n = 5$?

Answer: _____

Directions: Find the value of x that completes the sequence.

13) $400,\ x,\ 784,\ 1024,\ 1296,\ 1600,\ \ldots$

Answer: _____

14) $7,\ 38,\ 109,\ 238,\ 443,\ x,\ 1153, \ldots$

Answer: _____