Name Key Date Hour

Introduction to Sequences - Arithmetic
Alg 2 Trig

Complete the blanks and/or complete the tables in each problem.

1)

Term 1 **Term 2** **Term 3**

Term #	How many black triangles?
1	1
2	3
3	9
4	27
5	81

x3

* geometric

2)

Figure

1 2 3

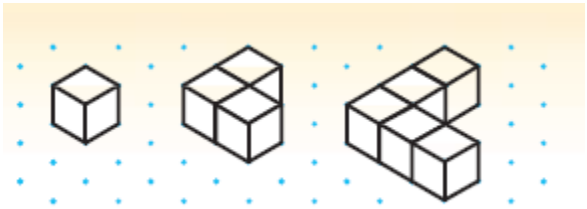

Figure #	Volume
1	1
2	3
3	5
4	7
5	9

+2

* arithmetic

3) -4, -2, 0, 2, 4, 6, 8

+2 * arithmetic

4) 4, -2, 1, -½, ¼, -⅛, 1/16

x -1/2 * geometric

5) 8, 15, 22, 29, 36, 43, 50

+7 * arithmetic

6) 4, 9, 16, 25 +5 +7 +9 36, 49, 64

* no pattern

* **Are all these arithmetic and geometric sequences?? Which ones are arithmetic? Which ones are geometric??**

Formula for an arithmetic sequence:

$$a_n = a_1 + d(n-1)$$

a_n = nth term
a_1 = 1st term
d = repeated addition or subtraction
n = # of term a_n

Practice:

1) In August, you open a savings account with $1,000. Each month after that, you deposit $200. If you never withdraw money, express the money in your savings account. How much money would you have after 11 months?

$a_{11} = 1000 + 200(11-1)$

$a_{11} = \$3,000$

2) A rumor that Justin Bieber is performing a concert at HC is started by a group of 6 friends at lunch. The rumor spreads and the total number of people who have heard the rumor increases by 35 people every day. Several days later, you find out that 321 people heard the rumor. Exactly how many days later was it?

$321 = 6 + 35(n-1)$
$315 = 35(n-1)$
$9 = n-1$
$n = 10$ days

3) Consider the sequence: 38, 46, 54, 62, … What is a_{12}? $d = 8$

$a_{12} = 38 + 8(12-1)$

$a_{12} = 126$

4) Find the indicated term if $a_1 = -7$, $d = -3$, and $n = 15$.

$a_{15} = -7 - 3(15-1)$

$a_{15} = -49$