

# HW32

## Algebra 2

### 1.4 Investigation – Match Them Up

Name: \_\_\_\_\_  
 Period: \_\_\_\_\_

Step 1: Do #1-6 to the right.

Step 2: Compare arithmetic and geometric sequences, graphs, and tables. Write down at least 3 things that you notice.

Step 3: Refer back to #1 and #2 from the matching. which is an example of growth? How about decay? How can you tell?

Step 4: How can you identify an arithmetic or geometric relationship from a table? From a graph? From a formula?

1.

$n$	$u_n$
0	8
1	4
3	1
6	0.125
9	0.015625

2.

$n$	$u_n$
0	0.5
1	1
2	2
3	4
4	8

3.

$n$	$u_n$
0	2
1	1
2	2.5
4	3.625
5	4.8125

4.

$n$	$u_n$
0	-2
2	2
5	8
7	12
10	18

5.

$n$	$u_n$
0	8
1	6
3	2
5	-2
7	6

6.

$n$	$u_n$
0	-4
1	-4
2	-4
4	-4
8	-4

A.  $u_0 = 8$

$u_n = u_{n-1} - 2$  where  $n \geq 1$

D.  $u_0 = -2$

$u_n = u_{n-1} + 2$  where  $n \geq 1$

B.  $u_0 = 8$

$u_n = 0.5u_{n-1}$  where  $n \geq 1$

E.  $u_0 = -4$

$u_n = u_{n-1}$  where  $n \geq 1$

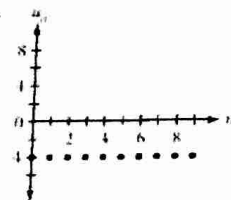
C.  $u_0 = 0.5$

$u_n = 2u_{n-1}$  where  $n \geq 1$

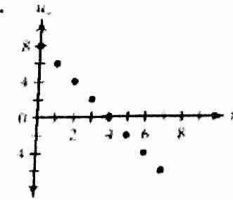
F.  $u_0 = -2$

$u_n = 0.5u_{n-1} + 2$  where  $n \geq 1$

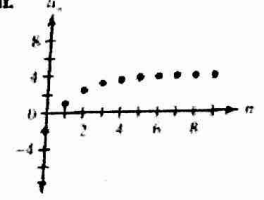
i.



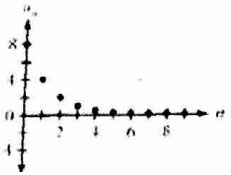
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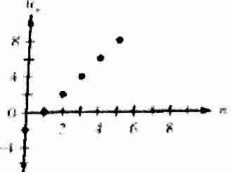
iii.



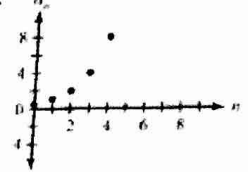
iv.



v.



vi.



Example 1. Consider the sequence 100,45,20.25,...

- Is the sequence arithmetic, geometric, or neither? How do you know? Is this growth or decay? How do you know?
- What is the pattern? How do you know? This is call the common ratio.
- What is the recursive formula?

Example 2. Gloria deposits \$2000 into a bank account that pays 7% interest, compounded annually. Assume she leaves the original amount and the interest earned in the account at all times.

- Complete the table.

Year	0	1	2	3	4	5	6	7	8
Amount (\$)									

- How did you find the values in the table? What's another way to find the values in the table?
- When will her account double in value?
- Write a recursive formula for the situation.
- Can you write an equation ( $y = \underline{\hspace{2cm}}$ )?