Name \_\_\_\_\_ Mr. Schlansky Date \_\_\_\_\_ Algebra II



## **Evaluating Recursive Sequences**

1. Find  $a_4$  of the sequence  $a_n = 2a_{n-1} + 3$  where  $a_1 = 1$ .

2. Find  $a_5$  of the sequence  $a_n = 4a_{n-1} - 2$  where  $a_2 = -3$ .

3. Find 
$$a_7$$
 sequence  $\frac{a_4 = -2}{a_n = -3a_{n-1} + 4}$ 

4. If 
$$a_n = \frac{a_{n-1}}{2} + 2$$
 and  $a_2 = 16$ , find  $a_5$ 

5. If  $a_n = (a_{n-1})^2 - 4$  and  $a_4 = 2$ , find  $a_7$ 

- 6. Find the first four terms of the recursive sequence defined below.  $a_1 = -3$
- $\alpha_n = \alpha_{(n-1)} n$

7. Find the 8<sup>th</sup> term for the sequence where  $a_n = 5a_{n-1} + 2n$  where  $a_5 = 3$ 

8. A sequence is defined recursively by  $a_1 = 16$  and  $a_n = a_{n-1} - 4n$ . Find  $a_4$ 

9. The recursive formula to describe a sequence is shown below.

State the first four terms of this sequence. Can this sequence be represented using an explicit geometric formula? Justify your answer.

$$a_1 = 3$$

 $\alpha_n = 1 + 2\alpha_{n-1}$ 

10. What is the fourth term of the sequence defined by  $a_1 = 3xy^5$ 

$$a_n = \left(\frac{2x}{y}\right)a_{n-1}?$$

- 1)  $12x^3y^3$
- 2)  $24x^2y^4$
- 3)  $24x^4y^2$
- 4)  $48x^5y$