

**PreCalculus**  
**WS: Chapter 14 Review**

**Name** \_\_\_\_\_  
**Date** \_\_\_\_\_ **Block** \_\_\_\_\_

**In 1 – 4, do the following:**

- a.) Identify whether the sequence is arithmetic, geometric, or neither.
- b.) If arithmetic or geometric, identify the common difference or common ratio.
- c.) If arithmetic or geometric, write a recursive rule.
- d.) Write an explicit rule.
- e.) Find  $a_{13}$ .

1.)  $5, 2, -1, -4, -7, \dots$

2.)  $1, \frac{1}{8}, \frac{1}{27}, \frac{1}{64}, \frac{1}{125}, \dots$

3.)  $5, -15, 45, -135, \dots$

4.)  $1, 8, 17, 28, 41, \dots$

5.) Find the sum of the first 55 terms for the series:  $4 + 11 + 18 + 25 + \dots$

6.) For the given series,  $105 + 111 + 117 + \dots$ , find which term gives the sum of 6336.

7.) Find “ $n$ ” if you know that  $S_n = 59,046$  in the series  $6 + 18 + 54 + 162\dots$

8.) Find:  $\sum_{n=1}^8 (-2n^2 + 7n)$

9.) Write the following in summation notation:  $5 + 10 + 15 + 20 + \dots + 60$ .

10.) A runner begins training by running 3 miles one week. The second week she runs a total of 5 miles. The third week she runs 7 miles. Assume this pattern continues.

a.) How far will she run in the tenth week?

b.) At the end of the tenth week, what will be the total distance she has run since she started training?

c.) Express the total distance with summation notation.

11.) Use patterns in Pascal’s Triangle to complete the next row.



12.) Find the coefficient of the  $x^3y^2$  term in the expansion of  $(2x - y)^5$ .

13.) Fully expand and simplify the binomial:  $(2x + y)^6$ .

14.) Find the fifth term (simplified) in:  $(3x - 2y)^7$