Name: _____ **Unit 6:** Sequences

Date: _____ **Period:** _____ **Practice:** Arithmetic vs. Geometric Sequences

Arithmetic Sequence: A sequence of terms that have a common difference between them.

- Formula: $\boldsymbol{a_n = a_1 + d(n-1)}$ where a_1 is the 1st number in the sequence and *d* is the common difference.

Geometric Sequence: A sequence of terms that have a common ratio between them.

- Formula: $\boldsymbol{a_n = a_1(r)^{n-1}}$ where a_1 is the 1st number in the sequence and *r* is the common ratio.

Are the following sequences arithmetic or geometric? If they are arithmetic, stated the value of *d*. If they are geometric, state the value of *r*.

1. 6, 12, 18, 24, … type: _____ d or r: _____

2. 6, 11, 16, … type: _____ d or r: _____

3. 2, 14, 98, 686, … type: _____ d or r: _____

4. 160, 80, 40, 20, … type: _____ d or r: _____

5. -40, -25, -10, 5, … type: _____ d or r: _____

6. 7, -21, 63, -189, … type: _____ d or r: _____

For the following sequences, find a_1 and d and state the formula for the general term.

7. -10, -4, 2, 8, 14, … a_1 = _____ d = _____ Formula:

8. 10, 8, 6, 4, … a_1 = _____ d = _____ Formula:

9. 36, 31, 26, 21, … a_1 = _____ d = _____ Formula:

10. Use the formula from #9 to find the seventh term and the 20th term.

For the following sequences, find a_1 and r and state the formula for the general term.

11. 4, 20, 100, 5000, … a_1= _____ r = _____ Formula:

12. 3, -6, 12, -24, 48, … a_1= _____ r = _____ Formula:

13. 1, 3, 9, 27, … a_1= _____ r = _____ Formula:

14. Use the formula from question #13 to find the value of the fifth term and the twelfth term.