Sequences Practice Worksheet

Name _____ Class Period_____

Arithmetic Sequences: A sequence of terms that have a common _____ between them.

Formula: $a_n = a_1 + (n-1) \cdot d$ where a_1 is the first number in the sequence and d is the common difference.

Geometric Sequences: A sequence of terms that have a common _____ between them.

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

Are the following sequences, arithmetic, geometric, or neither?
*If they are arithmetic, state the value of d. *If they are geometric, state r.

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

2. 6, 11, 17, ...   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. Don't forget to simplify!

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:

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10. Use the formula from question #9 to find the value of a_7 and a_{20}.

For the following sequences, find a_1 and r and state the formula for the general term. Don't forget to simplify!

11. 1, 3, 9, 27, ... $a_1 =$ _____ $r =$ _____   Formula:

12. 12, 6, 3, 1.5, ... $a_1 =$ _____ $r =$ _____   Formula:

13. 9, -3, 1, -1/3, ... $a_1 =$ _____ $r =$ _____   Formula:

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14. Use the formula from question #13 to find the value of a_4 and a_{12}.

Decide if each of the following scenarios describes an arithmetic or geometric sequence. Then, write the formula for the sequence.

15. A student comes to school with the flu and infects three other students within an hour before going home. Each newly infected student passes the virus to three new students in the next hour. This pattern continues until all students in the school are infected with the virus.

    Type: _____   Formula: _____

16. Round 1 of a tennis tournament starts with 128 players. After each round, half the players have lost and are eliminated from the tournament. Therefore, in round 2 there are 64 players, in round 3 there are 32 players and so on.

    Type: _____   Formula: _____

17. Paul has $680 in a savings account. He makes a deposit after he receives each paycheck. After one month he has $758 in the account. The next month the balance is $836. The balance after the third month is $914.

    Type: _____   Formula: _____

18. The table shows the number of country club members for four years after it began.

Time(yrs)	0	1	2	3	4
Members	100	200	300	400	500

    Type: _____   Formula: _____