Sequences Practice Worksheet

Name: _____ Date: _____

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

Formula: $a_n = a_1 + (n-1) \bullet d$ 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}.