Name: _____ Date: _____

Arithmetic and Geometric Sequences Practice Worksheet 2

For each Sequence, Pattern, Table, or Story below identify whether it is Arithmetic or Geometric, find the common difference or common ratio, write an Explicit Formula, then use your formulas to find the given term.

Representation	Arithmetic (+ −) (× ÷) or Geometric	Common Difference or Ratio	Recursive Formula	Explicit Formula	Given Term
1. -2, 6, -18, ... mult. by -3 $a_1 = -2$	G	$r = -3$	$a_n = r(a_{n-1})$ $a_n = -3(a_{n-1})$	$a_n = a_1 \cdot r^{n-1}$ $a_n = -2 \cdot (-3)^{n-1}$	a_{10} $a_{10} = -2(-3)^{10-1}$ $= -2(-3)^9$ $= -2 \cdot -19683 = 39,366$
2. -3, 2, 7, 12 ... +5 $a_1 = -3$	A	$d = 5$	$a_n = a_{n-1} + d$ $a_n = a_{n-1} + 5$	$a_n = a_1 + (n-1)d$ $a_n = -3 + (n-1)5$ $a_n = -3 + 5n - 5$ $a_n = -8 + 5n$	a_5 $a_5 = -8 + 5(5)$ $-8 + 25$ 17
3. 90, 78, 66, 54 .. sub. 12 $a_1 = 90$	A	$d = -12$	$a_n = a_{n-1} - 12$	$a_n = 90 + (n-1)-12$ $a_n = 90 - 12n + 12$ $a_n = 102 - 12n$	a_{56} $102 - 12(56)$ $102 - 672$ -570
4. 200, 100, 50 ... $\times \frac{1}{2}$ $a_1 = 200$	G	$r = \frac{1}{2}$	$a_n = r(a_{n-1})$ $a_n = \frac{1}{2}(a_{n-1})$	$a_n = a_1 \cdot r^{n-1}$ $a_n = 200 \cdot (\frac{1}{2})^{n-1}$	a_5 $200 \cdot (\frac{1}{2})^{5-1}$ $200 \cdot (\frac{1}{2})^4$ $200 \cdot .0625$ 12.5
5. -5, -10, -20 ... mult. by 2 $a_1 = -5$	G	$r = 2$	$a_n = r \cdot a_{n-1}$ $a_n = 2 \cdot a_{n-1}$	$a_n = -5 \cdot 2^{n-1}$	a_{12} $-5(2)^{12-1}$ $-5 \cdot 2^{11}$ $-5 \cdot 2048$ -10240