Name: _____ Date: _____ Per: _____

## Arithmetic/Geometric Sequences & Recursive Formulas

1. Use the recursive formulas to write the first three terms of each sequence.

a. $u_0 = 3$, $u_n = u_{n-1} \cdot (-2)$

$u_0 = 3$

$u_1 = -6$

$u_2 = 12$

GEOMETRIC

b. $u_0 = -7$, $u_n = u_{n-1} - 5$

$u_0 = -7$

$u_1 = -12$

$u_2 = -17$

ARITHMETIC

c. $u_0 = 80$, $u_n = u_{n-1} \cdot \frac{1}{4}$

$u_0 = 80$

$u_1 = 20$

$u_2 = 5$

GEOMETRIC

d. $u_0 = -21$, $u_n = u_{n-1} + 20$

$u_0 = -21$

$u_1 = -1$

$u_2 = 19$

ARITHMETIC

2. Circle the type of sequence, then write the recursive formula if possible.

a. 15, 14, 13, 12, 11

(Arithmetic)/Geometric/Neither

Recursive formula:

$u_0 = 15$

$u_n = u_{n-1} - 1$

b. -6, -13.2, -29.04, -63.8, -140.5536

Arithmetic/(Geometric)/Neither

Recursive formula:

$u_0 = -6$

$u_n = u_{n-1} \cdot 2.2$

c. -1, 3, -7, ?, ?

Arithmetic/Geometric/(Neither)

Recursive formula:

n/a

d. 90, 60, 40, $\frac{80}{3}$, $\frac{160}{9}$

Arithmetic/(Geometric)/Neither

Recursive formula:

$u_0 = 90$

$u_n = u_{n-1} \cdot \left(\frac{2}{3}\right)$

e. -7, -3.7, -0.4, 2.9, 6.2

(Arithmetic)/Geometric/Neither

Recursive formula:

$u_0 = -7$

$u_n = u_{n-1} + 3.3$

f. 10, -44, 193.6, -851.84, 3748.096

Arithmetic/(Geometric)/Neither

Recursive formula:

$u_0 = 10$

$u_n = u_{n-1} \cdot (-4.4)$