F & T
Recursive vs. Explicit

Name _____

**Arithmetic Recursive Formula**

$a_1 =$ ____

$a_n = a_{n-1} + d$

**Geometric Recursive Formula**

$a_1 =$ ____

$a_n = r \cdot a_{n-1}$

**Write the Explicit formula and Recursive formula for the following sequences.**

1.) 3, 13, 23, 33, …..

Recursive: $a_1 = 3$, $a_n = a_{n-1} + 10$

Explicit: $a_n = 3 + (n-1)10$

2.) 2, 20, 200, 2000, …..

Recursive: $a_1 = 2$, $a_n = 10 \cdot a_{n-1}$

Explicit: $a_n = 2(10)^{n-1}$

3.) 1, 7, 13, 19, …..

Recursive: $a_1 = 1$, $a_n = a_{n-1} + 6$

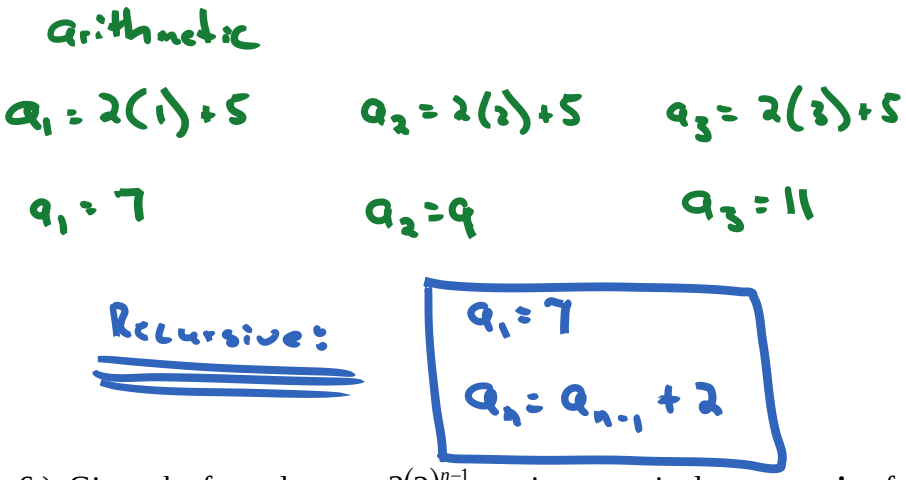
Explicit: $a_n = 1 + (n-1)6$

4.) 66, 33, 16.5, 8.25, ……

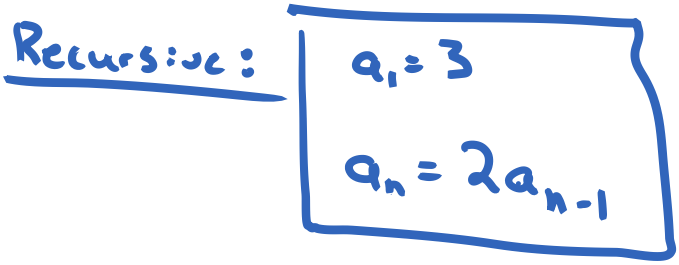
Recursive: $a_1 = 66$, $a_n = \frac{1}{2} a_{n-1}$

Explicit: $a_n = 66\left(\frac{1}{2}\right)^{n-1}$

5.) Given the formula $a_n = 2n + 5$ write an equivalent **recursive** formula.




6.) Given the formula $a_n = 3(2)^{n-1}$ write an equivalent **recursive** formula.




7.) At her job, Pat earns \$25,000 the first year and receives a raise of \$1000 each year.

The **explicit** formula for the n$^{th}$–term of this sequence is $a_n = 25{,}000 + (n-1)1000$.

Which rule represents the equivalent **recursive** formula?

(a) $a_n = 24{,}000 + 1000n$

(b) $a_n = 25{,}000 + 1000n$

(c) $a_1 = 25{,}000 \quad , \quad a_n = a_{n-1} + 1000$

(d) $a_1 = 25{,}000 \quad , \quad a_n = a_{n+1} + 1000$