

$a = \text{start}$

	Arithmetic	Geometric
Define the pattern:	$d = \text{common diff.}$	$r = \text{common ratio}$
Recursive:	$f(n) = f(n-1) + d$ $f(0) = a$	$f(n) = f(n-1) \times r$ $f(1) = a$
Explicit:	$f(n) = dn + a$ OR $f(n) = d(n-1) + a$	$f(n) = a \cdot r^n$ $f(n) = a \cdot r^{n-1}$

↑
If we start
at 1

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Warm-up: Monday 2/5/18

- ① If a geometric sequence starts with 4 and multiplies by 5, write a recursive and explicit.

recursive
 $f(n) = f(n-1) \cdot 5$
start: ~~4~~
 $f(1) = 4$

$f(n) = 4 \cdot 5^{n-1}$
explicit

- ② If an arithmetic sequence starts with 100 and subtracts 8, write a recursive and explicit.

recursive
 $f(n) = f(n-1) - 8$
start: $f(1) = 100$

explicit
 $f(n) = -8(n-1) + 100$

- ③ A ball starts at a height of 400 inches. Each time it bounces back up to $\frac{1}{2}$ of its height. Write a recursive and explicit.

Geo
recursive
 $f(n) = f(n-1) \times \frac{1}{2}$
 $f(0) = 400$

explicit
 $f(n) = 400 \left(\frac{1}{2}\right)^n$