Algebra 1

Chapter 7

Section 7-8

Concepts

Geometric Sequence	Sequence of numbers that has a common ration (looks like an exponential function)
Arithmetic Sequence	Sequence of numbers that has a common difference (looks like a linear function)

Review: Arithmetic Sequences

Recursive

$$A_n = A_{n-1} + d$$

or

Explicit

$$A_n = A_1 + d(n - 1)$$

Geometric Sequences

Recursive

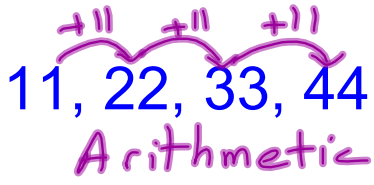
$$A_n = A_{n-1} \bullet r$$

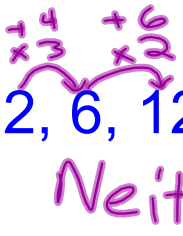
or

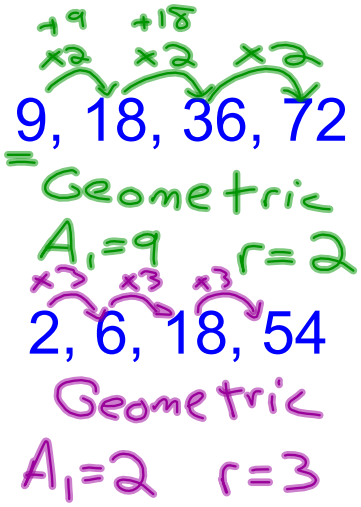
Explicit

$$A_n = A_1 \bullet r^{(n - 1)}$$

Are the following sequences arithmetic, geometric or neither? If it's geometric, identify A_1 and r.







Are the following sequences arithmetic, geometric or neither? If it's geometric, identify A_1 and r.

7, 12, 30, 41

Neither

x-2 x-2 x-2

-3, 6, -12, 24

Geometric

$A_1=-3$ $r=-2$

x-4 x-2 x-2

-2, 8, -16, 32

Neither

10, 20, 40, 80

Geometric

$A_1=10$

$r=2$

Write the recursive formulas for the geometric sequences.

7, 21, 63, 189

$A_n = A_{n-1} \cdot 3$

-2, 4, -8, 16

$A_n = A_{n-1} \cdot (-2)$

Write the explicit formulas for the geometric sequences.

9, 3, 1, $\frac{1}{3}$

$r = \frac{1}{3}$

$A_1 = 9$

$A_n = 9 \cdot \left(\frac{1}{3}\right)^{n-1}$

2, 20, 200, 2000

$r = 10$

$A_1 = 2$

$A_n = 2 \cdot 10^{n-1}$