

# Sequences

# Sequences are...

- \* a list of values separated with commas
- \* Form some sort of pattern to help determine subsequent terms





# Vocabulary

- \* Term: The value in a sequence
- \* Index: The position of the term in the sequence
  - \* The index is represented as a subscript of the sequence name
  - \*  $A_3$  means “the third term of sequence A”
- \*  $n^{\text{th}}$  term: the term found in the “n” position

# Two Main Types of Sequences

## Arithmetic

- \* The pattern between terms is either addition or subtraction
- \* The number that represents the pattern has the symbol “ $d$ ”

## Geometric

- \* The pattern between terms is found by either multiplying or dividing
- \* The number that represents the pattern has the symbol “ $r$ ”



# Types of Rules (formulas, equations)

## Arithmetic

\* Explicit:

\* Recursive:

## Geometric

\* Explicit:

\* Recursive:

Which formula is better?



6, 15, 24, 33, 42, ...

\* Which is the fourth term?

\* What is the index of 42?

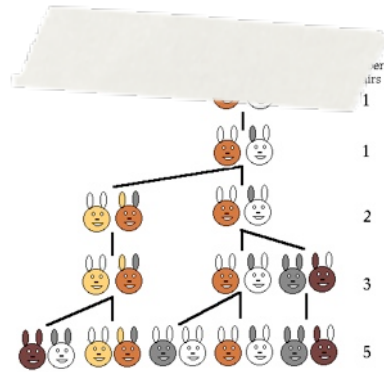
\* What is the pattern?

\* What is the  $n^{\text{th}}$  term?

$-2, 6, -18, 54, -162, 486, \dots$

- \* What is the pattern?
- \* What is the position of  $-18$ ?
- \* What is  $g_6$ ?
- \* What is the  $n^{\text{th}}$  term?





# Sequences in Real Life

# Type I Writing:

## Research Fibonacci Sequence

[http://jwilson.coe.uga.edu/emat6680/parveen/fib\\_nature.htm](http://jwilson.coe.uga.edu/emat6680/parveen/fib_nature.htm)

or

[www.youtube.com/watch?v=ktLcSH4UkpE](http://www.youtube.com/watch?v=ktLcSH4UkpE)

Summarize what you've read/watched in 50 words or less.

Using complete sentences, appropriate mathematical vocabulary and correct punctuation.

Due April 25, 2013 by the time class starts