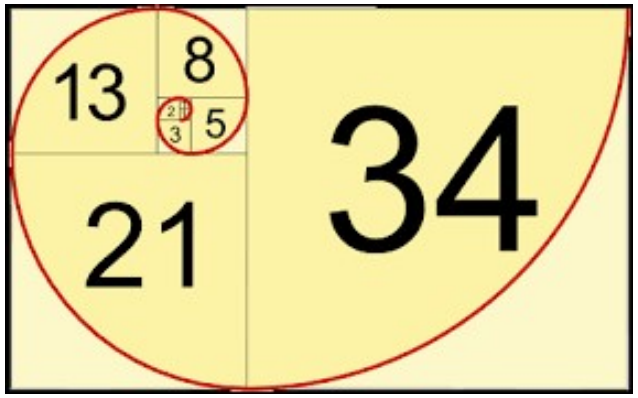
Definisi

- Barisan: sejumlah (daftar) elemen yang terurut
  - Like a set, but:
    - Elements can be duplicated
    - Elements are ordered



Sequences

- A sequence is a function from a subset of **Z** to a set S
  - Usually from the positive or non-negative ints
  - a_n is the image of n

- a_n is a term in the sequence
- $\{a_n\}$ means the entire sequence
  - The same notation as sets!

Sequence examples

- $a_n = 3n$
  - The terms in the sequence are $a_1, a_2, a_3, \ldots$
  - The sequence $\{a_n\}$ is $\{ 3, 6, 9, 12, \ldots \}$

- $b_n = 2^n$
  - The terms in the sequence are $b_1, b_2, b_3, \ldots$
  - The sequence $\{b_n\}$ is $\{ 2, 4, 8, 16, 32, \ldots \}$

- Note that sequences are indexed from 1
  - Not in all other textbooks, though!

Geometric VS arithmetic sequences

- The difference is in how they grow
- Arithmetic sequences increase by a constant *amount*
  - $a_n = 3n$
  - The sequence $\{a_n\}$ is { 3, 6, 9, 12, … }
  - Each number is 3 more than the last
  - Of the form: $f(x) = dx + a$
- Geometric sequences increase by a constant *factor*
  - $b_n = 2^n$
  - The sequence $\{b_n\}$ is { 2, 4, 8, 16, 32, … }
  - Each number is twice the previous
  - Of the form: $f(x) = ar^x$