



CMSC 250

Discrete Structures

Summation:

Sequences and Mathematical Induction

What is Next?

■ 2, 4, 6, 8, 10, ...

■ 1, 4, 9, 16, 25, ...

■ 2, 4, 8, 16, 32, ...

■ 0, 1, 1, 2, 3, 5, ...

Sequences

- $2, 4, 6, 8, \dots$ for $i \geq 1$ $a_i = 2i$
 - infinite sequence with infinite distinct values
- For $i \geq 1$ $b_i = (-1)^i$
 - infinite sequence with finite distinct values
- For $1 \leq i \leq 6$ $c_i = i + 5$
 - finite sequence (with finite distinct values)