Math 181 Thursday, March 11 Sections 10.1 / 10.2

Ex $a_n = \left(1 + \frac{5/2}{n}\right)^n \quad (= a(n))$

Fri - 10.2
BYOB TV Shows

$\lim_{n\to\infty} a_n = \lim_{n\to\infty} \left(1 + \frac{5/2}{n}\right)^n$

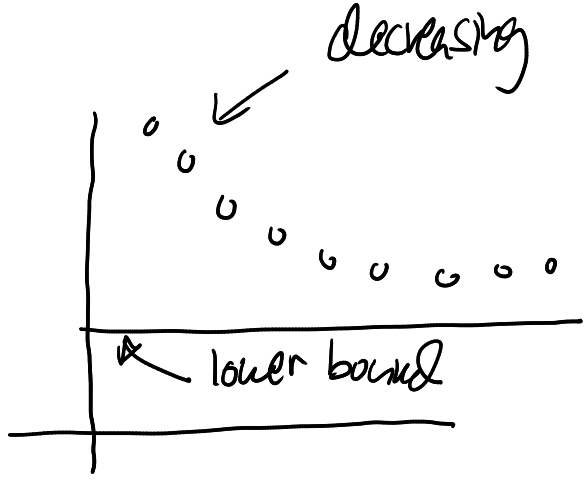
Mon - Review

Tue - Exam 2
Chapter 7

Sequences can be increasing or decreasing.

Ex • is increasing.

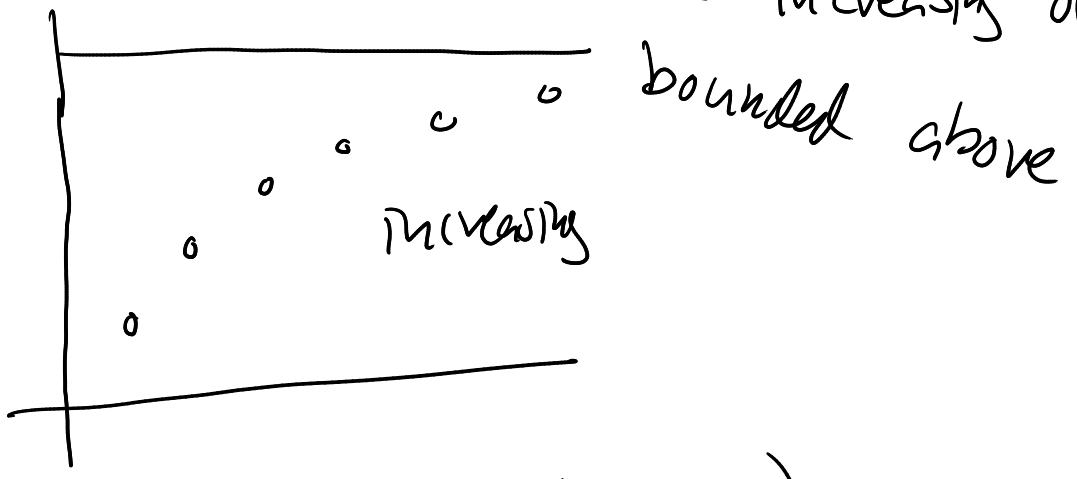
Sequences can be <u>bounded</u>, above or below.



Theorem A bounded monotonic sequence has a limit.

↑ increasing or decreasing

Ex



10.2 Infinite Series (Series)

Sequence a_n, build a new sequence, the sequence of partial sums.

WW 10.1.2 $C_n = 6 + 6/2 + 6/3 + \cdots + 6/n$

Base sequence $6, 6/2, 6/3, \cdots,$

Series (sequence) $6,\ 6+6/2,\ 6+6/2+6/3,\ 6+6/2+6/3+6/4, \cdots$

Ex Series from base sequence $b_n = (2/3)^n \quad n \geq 0$

Base sequence $1, 2/3, 4/9, 8/27, 16/81, \ldots$ limit? 0

Series $1, 1+2/3, 1+2/3+4/9, 1+2/3+4/9+8/27, \ldots$

$5/3, 19/9, 65/27, \ldots$ limit? ?

$\sum_{n=0}^{\infty} (2/3)^n$

Ex Series from base sequence $c_n = 6/n^2, \; n \geq 1$

Base sequence: $6, 6/4, 6/9, 6/16, 6/25, \ldots$ limit 0

Series: $6, 6+6/4, 6+6/4+6/9, 6+6/4+6/9+6/16, 6+6/4+6/9+6/16+6/25, \ldots$

limit? ?

$\sum_{n=1}^{\infty} 6/n^2$