Oct 27

(1) DCT — — — — —

(2) LCT

$\sum a_n$ & $\sum b_n$ are both positive term series. $\lim_{n\to\infty} \frac{a_n}{b_n} = c$, $0 < c < \infty$

then either both cvg or diverge.

(a) $c = 0$, $a_n > b_n$, $\sum b_n$ cvg then $\sum a_n$ cvg.

(b) $c = \infty$, $\sum a_n$ cvg then $\sum b_n$ cvg

b_n div then $\sum a_n$ div.

(3) A.S.T

$\sum_{n=1}^{\infty} a_n = \sum_{1}^{\infty} (-1)^n b_n$: $- \to - +$

(a) $\lim_{n\to\infty} b_n = 0$

(b) b_n is decreasing

$b_{n+1} < b_n$, then $\sum a_n$ cvg

Abs Cvg

If a series $\sum a_n$ cvgt and if $\sum |a_n|$ is cvgt then it is abs...

Conditionally Cvgt

If $\sum |a_n|$ diverge and $\sum a_n$ converge

Ratio Test

$\sum a_n$ — series

$$L = \lim_{n\to\infty} \left| \frac{a_{n+1}}{a_n} \right|, \text{ then}$$

(1) $L < 1$, it converges absolutely

(2) $L > 1$, it diverges

(3) $L = 1$, inconclusive.

ROOT TEST

$\sum a_n$ - series

$$L = \lim_{n\to\infty} \sqrt[n]{|a_n|}$$