

MAT 162-003 and MAT 162-300
Main Topics for Test 4
Wednesday, April 4, 2012

(Sections 11.1 through 11.7)

Sequences

Be able to :

- find the first few terms of a sequence, when the sequence is given either by an explicit formula for the n^{th} term or by a recursive formula
- use special rules for finding limits of sequences as $n \rightarrow \infty$ by:
 - L'Hospital's Rule
 - the rules for $\{r^n\}$ and $\{1/n^r\}$
 - the Squeeze Theorem

Series

Be able to:

- determine whether a given series converges or diverges, writing complete sentences for reasons, using these tests for convergence/divergence:
 - Geometric series theorem
 - Telescoping series
 - n^{th} term test for divergence
 - Integral test
 - p-series test
 - Comparison test
 - Limit comparison test
 - Alternating series test
 - Absolute convergence test
 - Ratio test
 - Root test
- find the exact sum of a convergent geometric series $[a/(1-r)]$ and of a convergent telescoping series (limit of the n^{th} partial sums)
- approximate the sum of a series by:
 - comparison with a geometric series
 - the alternating series estimation theorem