

SERIES TESTS

Test	Hints for its use:	Error Approximation
Test for Divergence	Should always try this test first	NONE
Geometric Series	exponential functions	$\sum_{n=1}^{\infty} ar^{n-1} = \frac{a}{1-r}$
Integral Test	p -series	$\int_{k+1}^{\infty} f(x)dx \leq R_k \leq \int_k^{\infty} f(x)dx$
	functions involving $\ln(n)$	
Comparison Test	rational functions	$R_k \leq \sum_{n=k+1}^{\infty} b_n$
	functions involving exponentials	where $\sum b_n$ is the known series.
Limit Comparison Test	Same as Comparison Test	NONE
Alternating Series	Series looks like $\sum (-1)^n a_n$	$ R_k \leq a_{k+1}$
Absolute Convergence	functions involving $\sin(n)$ or $\cos(n)$	NONE
Ratio Test	functions involving factorials	If $\left\{ r_n = \frac{a_{n+1}}{a_n} \right\}$ is decreasing and
	products of functions	$r_{k+1} < 1$, then $R_k \leq \frac{a_{k+1}}{1-r_{k+1}}$.
		If $\{r_n\}$ is increasing and $\lim_{n \rightarrow \infty} \frac{a_{n+1}}{a_n} = L < 1$, then $R_k \leq \frac{a_{k+1}}{1-L}$.