Approximation Method	**Approx. of** $s = \sum_{n=1}^{\infty} a_n$	**Error Bound,** $R_n = s - s_n$
Integral Test, Method 1	s_n	$R_n \leq I_n = \int_n^{\infty} f(x)\ dx,\ f(n) = a_n$
Integral Test, Method 2	$A_n = s_n + \frac{1}{2}(I_n + I_{n+1})$	$\lvert s - A_n \rvert \leq \frac{1}{2} a_n$
Comparison Test, $\sum b_n = \sum_{n=1}^{\infty} ar^{n-1}$	s_n	$R_n \leq T_n = \frac{b_{n+1}}{1-r}$
Comparison Test, $\sum b_n = \sum_{n=1}^{\infty} \frac{1}{n^p}$	s_n	$R_n \leq T_n \leq \int_n^{\infty} g(x)\ dx,\ g(n) = b_n$
Alternating Series Test	s_n	$\lvert R_n \rvert \leq b_{n+1}$
Ratio Test, $r_n = \frac{a_{n+1}}{a_n} \to L$	s_n	$R_n \leq \frac{a_{n+1}}{1-r_{n+1}}$ if r_n is decreasing
Ratio Test, $r_n = \frac{a_{n+1}}{a_n} \to L$	s_n	$R_n \leq \frac{a_{n+1}}{1-L}$ if r_n is increasing
Root Test, $r_n = a_n^{1/n} \to L$	s_n	$R_n \leq \frac{a_{n+1}}{1-r_{n+1}}$ if r_n is decreasing
Root Test, $r_n = a_n^{1/n} \to L$	s_n	$R_n \leq \frac{L^{n+1}}{1-L}$ if r_n is increasing

Table 1: Series Approximation Methods