TECHNIQUES FOR TESTING A SERIES FOR CONVERGENCE/DIVERGENCE

n^{th} Term Test:
$$\lim_{n \to \infty} a_n$$

$= 0$

Inconclusive

$\neq 0$

Diverges

Special Series?

p - Series

Geometric Series

Telescoping Series

$a_n = f(n)$ positive, continuous, decreasing?

Integral Test

Remainder Bound

Does the series resemble a simpler, known one?

Direct Comparison

Limit Comparison

Alternating Series?

Alternating Series Test

Remainder Bound

Ratio Test

Factorials?

Root Test

Powers of n?