

ABSOLUTE VS CONDITIONAL CONVERGENCE

Theorem:

If the series $\sum_{n=1}^{\infty} |a_n|$ converges, then $\sum_{n=1}^{\infty} a_n$ also converges.

Crazy Fact: Sometimes a mere rearrangement of terms in a convergent alternating series can yield different sums!!!

Such a series is called **absolutely convergent**. Notice that if it converges on its “own,” the alternator only allows it to converge more “rapidly”.

$\sum_{n=1}^{\infty} a_n$ is **conditionally convergent** if $\sum_{n=1}^{\infty} a_n$ converges but $\sum_{n=1}^{\infty} |a_n|$ diverges.