

## Lesson 10.11: Absolute vs Conditional Convergence

Many convergent series have negative terms, alternating or some pattern. Taking the absolute value of each term of a convergent series with some negative terms makes a new positive series less likely to converge since the sum will be greater without negative terms.

If the new positive series is still convergent the original series is called \_\_\_\_\_ convergent.

If the new positive series diverges the original series with negative terms is called \_\_\_\_\_ convergent.

If a series converges after taking the absolute value of its terms it is guaranteed to also converge with no absolute value.

### Examples:

1.  $\sum_{n=1}^{\infty} \frac{(-1)^n}{n}$

2.  $\sum_{n=1}^{\infty} \frac{\cos(n)}{n^2}$

3.  $\sum_{n=1}^{\infty} \frac{(-e)^n}{n^e}$