Definition of Convergent and Divergent Series

For the infinite series $\sum_{n=1}^{\infty} a_n$, the n^{th} **partial sum** is

$$S_n = a_1 + a_2 + \ldots a_n$$

If the sequence of partial sums (S_n) converges to S, then $\sum_{n=1}^{\infty} a_n$ **converges**. The limit S is called the **sum of the series**.

$$S_n = a_1 + a_2 + \ldots a_n + \ldots \; S = \sum_{n=1}^{\infty} a_n$$

If (S_n) diverges, then the series **diverges**.