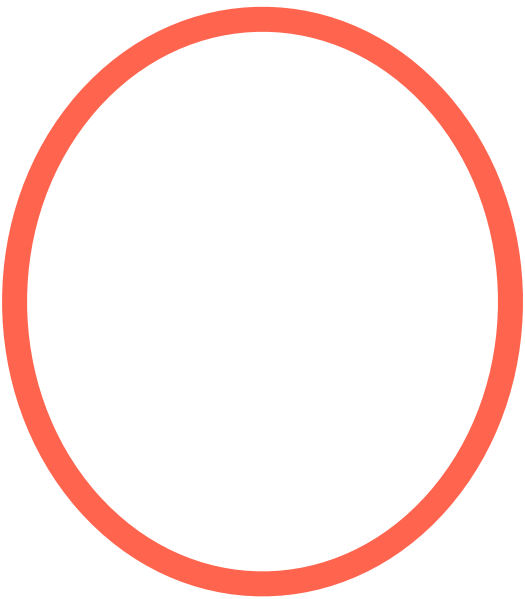
series

n-th partial sum

convergent

divergent



sum of the series

series

Given a series $\sum_{n=1}^{\infty} a_n = a_1 + a_2 + a_2 + \cdots$ we let s_n denote its n-th partial sum

$$s_n = a_1 + a_2 + a_3 + \cdots + a_n$$

If the sequence s_n is convergent and $\lim_{n\to\infty} s_n = S$ then the series $\sum_{n=1}^{\infty} a_n$ is convergent

and we let

$$\sum_{n=1}^{\infty} a_n = \lim_{n\to\infty} \sum_{i=1}^{n} a_n = \lim_{n\to\infty} s_n = S$$

S ← sum of the series

Otherwise the series is divergent

determine convergence/divergence using limit of s_n