Consider the series

$$S = \sum_{n=0}^{\infty} \frac{(-1)^{n+1}}{(n+1)(n+3)}.$$

Let S_N denote the Nth partial sum

$$S_N = \sum_{n=0}^{N} \frac{(-1)^{n+1}}{(n+1)(n+3)}.$$