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remainder term

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| Entry type       | Definition          |
| Classification   | msc 40-00           |
| Synonym          | remainder           |
| Synonym          | tail of series      |
| Related topic    | SumOfSeries         |

Let  $S_n$  be the  $n^{\text{th}}$  partial sum of the series  $a_1 + a_2 + \cdots$  with real or complex  $a_n$  ( $n = 1, 2, \dots$ ).

- If the series is convergent with sum  $S$ , then we call the  $R_n := S - S_n$  the  $n^{\text{th}}$  *remainder term* or simply *remainder* of the series ( $n = 1, 2, \dots$ ). Then  $\lim_{n \rightarrow \infty} R_n = 0$ .
- If there exists a number  $s$  such that  $\lim_{n \rightarrow \infty} (s - S_n) = 0$ , then the series is convergent and its sum is  $s$ .