

11.1 Arithmetic Series

Initial term: a_1

Nth term: a_n

Difference between successive terms: d

Number of terms in the series: n

Sum of the first n terms: S_n

$$1184. a_n = a_{n-1} + d = a_{n-2} + 2d = \dots = a_1 + (n-1)d$$

$$1185. a_1 + a_n = a_2 + a_{n-1} = \dots = a_i + a_{n+1-i}$$

$$1186. a_i = \frac{a_{i-1} + a_{i+1}}{2}$$

$$1187. S_n = \frac{a_1 + a_n}{2} \cdot n = \frac{2a_1 + (n-1)d}{2} \cdot n$$