

<Titel>

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<Datum>

$$\begin{aligned}
& \left| \sum_{i=1}^k i - \sum_{i=k+1}^n i \right| \dots \text{mit } n=2k, k \in \mathbb{N} \\
&= \sum_{i=k+1}^n i - \sum_{i=1}^k i = \sum_{i=1}^{k+1} i + k + 1 - \sum_{i=1}^k i = \sum_{i=1}^k i + k - \sum_{i=1}^k i = \sum_{i=1}^k (i + k) - 1 \\
&= \sum_{i=1}^k k = k \cdot k = k^2
\end{aligned}$$

Beispiel:

$$\begin{aligned}
k = 2 : \sum_{i=3}^4 i - \sum_{i=1}^2 i &= 2^2 = 4 \\
k = 3 : \sum_{i=4}^6 i - \sum_{i=1}^3 i &= 3^2 = 9
\end{aligned}$$