Das Summenzeichen

$$1^2+2^2+3^2+4^2+5^2$$

$$=\sum_{k=1}^{5} k^2$$

$$\sum_{i=3}^{7} \frac{1}{i} = \underbrace{\frac{1}{3}}_{i=3}+\frac{1}{4}+\frac{1}{5}+\frac{1}{6}+\underbrace{\frac{1}{7}}_{i=7}$$

$$\sum_{j=2}^{4} jm = 2m+3m+4m = 9m$$

$$5+5{,}5+6+6{,}5+7 = 5+(5+1\cdot 0{,}5)+(5+2\cdot 0{,}5)+(5+3\cdot 0{,}5)+(5+4\cdot 0{,}5)$$

$$=\sum_{k=0}^{4}(5+k\cdot 0{,}5)$$

$$\sum_{k=2}^{6}\sqrt{k+1} = \cancel{\sqrt{2+1}}\ \sqrt{3}+\sqrt{4}+\sqrt{5}+\sqrt{6}+\sqrt{7}$$

$$\sqrt{a}+\sqrt{b} \neq \sqrt{a+b}$$

$$\sqrt{16}+\sqrt{9} = 4+3 = 7$$

$$\sqrt{16+9} = \sqrt{25} = 5$$

$$12+10+8+6 =$$

$$= 6+8+10+12 = 3\cdot 2+4\cdot 2+5\cdot 2+6\cdot 2$$

$$= \sum_{k=3}^{6} k\cdot 2 \quad \Big| \quad \sum_{k=0}^{3}(6+k\cdot 2) = 6+8+10+12$$

$$\sum_{k=0}^{3}(12-2k) = 12+10+8+6$$

$$\sum_{k=3}^{6} k^2 = 3^2+4^2+5^2+6^2$$

-2 $\quad$ $+2$

$$\sum_{k=1}^{4} (k+2)^2 = 3^2+4^2+5^2+6^2$$

Indexverschiebung

$$\sum_{k=0}^{3} (k+3)^2$$

Gauß, 8 Jahre

$$\sum_{k=1}^{100} k$$

„Die Summe der ersten n natürlichen Zahlen"

$$\sum_{k=1}^{n} k = 1+2+3+\ldots+n = \frac{n(n+1)}{2}$$

$1 = 1$

$1+3 = 4 = 2^2$

$1+3+5 = 9 = 3^2$

$1+3+5+7 = 16 = 4^2$

$\underbrace{1+3+5+7+9}_{5 \text{ Summanden}} = 25 = 5^2$

Die Summe der ersten n ungeraden Zahlen ergibt n^2.

1,	2	3	4	n.
1	3	5	7	2n−1

$$\sum_{k=1}^{n} (2k-1) = n^2$$

$$= 1+3+5+7+\overset{2n-3}{\ldots}+(2n-1) = n^2$$