

POSEBNI KONAČNI ZBROJEVI (m©h)

- $1+2+3+4+\dots+n=\frac{n\cdot(n+1)}{2},$
- $1\cdot 2+2\cdot 3+3\cdot 4+4\cdot 5+\dots+n\cdot(n+1)=\frac{n\cdot(n+1)\cdot(n+2)}{3},$
- $1\cdot 1!+2\cdot 2!+3\cdot 3!+4\cdot 4!+5\cdot 5!+\dots+n\cdot n!=(n+1)!-1,$
- $1\cdot 2\cdot 3+2\cdot 3\cdot 4+3\cdot 4\cdot 5+4\cdot 5\cdot 6+\dots+n\cdot(n+1)\cdot(n+2)=\frac{n\cdot(n+1)\cdot(n+2)\cdot(n+3)}{4},$
- $1\cdot 3+3\cdot 5+5\cdot 7+7\cdot 9+\dots+(2\cdot n-1)\cdot(2\cdot n+1)=\frac{2\cdot n\cdot(n+1)\cdot(2\cdot n+1)}{3}-n,$
- $1\cdot 3+2\cdot 4+3\cdot 5+4\cdot 6+\dots+n\cdot(n+2)=\frac{n\cdot(n+1)\cdot(2\cdot n+7)}{6},$
- $p+(p+1)+(p+2)+(p+3)+\dots+(p+n)=\frac{(n+1)\cdot(2\cdot p+n)}{2},$
- $p+(p+1)+(p+2)+(p+3)+\dots+(q-1)+q=\frac{(q+p)\cdot(q-p+1)}{2},$
- $1+3+5+7+\dots+(2\cdot n-1)=n^2,$
- $2+4+6+8+\dots+2\cdot n=n\cdot(n+1),$
- $1^2+2^2+3^2+4^2+\dots+n^2=\frac{n\cdot(n+1)\cdot(2\cdot n+1)}{6},$
- $1^2-2^2+3^2-4^2+\dots+(-1)^{n-1}\cdot n^2=\frac{(-1)^{n-1}\cdot n\cdot(n+1)}{2},$
- $1+2+2^2+2^3+2^4+\dots+2^{n-1}=2^n-1,$
- $1^3+2^3+3^3+4^3+\dots+n^3=\frac{n^2\cdot(n+1)^2}{4},$
- $2^3+4^3+6^3+8^3+\dots+(2\cdot n)^3=2\cdot n^2\cdot(n+1)^2,$
- $1^4+2^4+3^4+4^4+\dots+n^4=\frac{n\cdot(n+1)\cdot(2\cdot n+1)\cdot(3\cdot n^2+3\cdot n-1)}{30},$
- $1^5+2^5+3^5+4^5+\dots+n^5=\frac{n^2\cdot(n+1)^2\cdot(2\cdot n^2+2\cdot n-1)}{12},$
- $1^2+3^2+5^2+7^2+\dots+(2\cdot n-1)^2=\frac{n\cdot(4\cdot n^2-1)}{3},$
- $1^3+3^3+5^3+7^3+\dots+(2\cdot n-1)^3=n^2\cdot(2\cdot n^2-1),$
- $1+2\cdot x+3\cdot x^2+4\cdot x^3+\dots+n\cdot x^{n-1}=\frac{1-(n+1)\cdot x^n+n\cdot x^{n+1}}{(1-x)^2}, x\neq 1.$
- $\frac{1}{6}+\frac{1}{12}+\frac{1}{20}+\dots+\frac{1}{n^2+3\cdot n+2}=\frac{n}{2\cdot n+4},$
- $\frac{1}{1\cdot 2}+\frac{1}{2\cdot 3}+\frac{1}{3\cdot 4}+\dots+\frac{1}{n\cdot(n+1)}=\frac{n}{n+1},$

- $\frac{1}{1 \cdot 2 \cdot 3} + \frac{1}{2 \cdot 3 \cdot 4} + \frac{1}{3 \cdot 4 \cdot 5} + \dots + \frac{1}{n \cdot (n+1) \cdot (n+2)} = \frac{n \cdot (n+3)}{4 \cdot (n+1) \cdot (n+2)},$
- $\frac{1}{1 \cdot 3} + \frac{1}{3 \cdot 5} + \frac{1}{5 \cdot 7} + \dots + \frac{1}{(2 \cdot n - 1) \cdot (2 \cdot n + 1)} = \frac{n}{2 \cdot n + 1},$
- $\frac{1}{2 \cdot 5} + \frac{1}{5 \cdot 8} + \frac{1}{8 \cdot 11} + \dots + \frac{1}{(3 \cdot n - 1) \cdot (3 \cdot n + 2)} = \frac{n}{6 \cdot n + 4},$ **Hvala Laura!**
- $\frac{1}{1 \cdot 4} + \frac{1}{4 \cdot 7} + \frac{1}{7 \cdot 10} + \dots + \frac{1}{(3 \cdot n - 2) \cdot (3 \cdot n + 1)} = \frac{n}{3 \cdot n + 1},$
- $\frac{1}{1 \cdot 5} + \frac{1}{5 \cdot 9} + \frac{1}{9 \cdot 13} + \dots + \frac{1}{(4 \cdot n - 3) \cdot (4 \cdot n + 1)} = \frac{n}{4 \cdot n + 1},$
- $\frac{1}{2 \cdot 4} + \frac{1}{4 \cdot 6} + \frac{1}{6 \cdot 8} + \dots + \frac{1}{2 \cdot n \cdot (2 \cdot n + 2)} = \frac{n}{2 \cdot (2 \cdot n + 2)},$
- $\frac{1}{1 \cdot 3 \cdot 5} + \frac{1}{3 \cdot 5 \cdot 7} + \frac{1}{5 \cdot 7 \cdot 9} + \dots + \frac{1}{(2 \cdot n - 1) \cdot (2 \cdot n + 1) \cdot (2 \cdot n + 3)} = \frac{n \cdot (n + 2)}{3 \cdot (2 \cdot n + 1) \cdot (2 \cdot n + 3)},$
- $\frac{1}{2!} + \frac{2}{3!} + \frac{3}{4!} + \dots + \frac{n}{n!} = 1 - \frac{1}{(n+1)!},$
- $\frac{1}{3} + \frac{2}{3^2} + \frac{3}{3^3} + \dots + \frac{n}{3^n} = \frac{3}{4} - \frac{2 \cdot n + 3}{4 \cdot 3^n},$
- $\frac{3}{1^2 \cdot 2^2} + \frac{5}{2^2 \cdot 3^2} + \frac{7}{3^2 \cdot 4^2} + \dots + \frac{2 \cdot n + 1}{n^2 \cdot (n+1)^2} = \frac{n \cdot (n+2)}{(n+1)^2},$
- $\frac{1}{1^2 \cdot 2^2} + \frac{2}{3^2 \cdot 5^2} + \frac{3}{5^2 \cdot 7^2} + \dots + \frac{n}{(2 \cdot n - 1)^2 \cdot (2 \cdot n + 1)^2} = \frac{n \cdot (n+1)}{2 \cdot (2 \cdot n + 1)^2},$
- $\frac{1^2}{1 \cdot 3} + \frac{2^2}{3 \cdot 5} + \frac{3^2}{5 \cdot 7} + \dots + \frac{n^2}{(2 \cdot n - 1) \cdot (2 \cdot n + 1)} = \frac{n \cdot (n+1)}{2 \cdot (2 \cdot n + 1)},$
- $\frac{1}{\sqrt{3} + \sqrt{5}} + \frac{1}{\sqrt{5} + \sqrt{7}} + \frac{1}{\sqrt{7} + \sqrt{9}} + \dots + \frac{1}{\sqrt{2 \cdot n - 1} + \sqrt{2 \cdot n + 1}} = \frac{n-1}{\sqrt{3} + \sqrt{2 \cdot n + 1}},$

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- $\frac{1}{2} + \frac{3}{4} + \frac{5}{6} + \frac{7}{8} + \dots + \frac{2 \cdot n - 1}{2 \cdot n} + \dots = 1,$
- $1 + \frac{1}{3} + \frac{1}{5} + \frac{1}{7} + \frac{1}{9} + \dots + \frac{1}{2 \cdot n - 1} + \dots = \frac{1}{3},$
- $1 + \frac{1}{2} + \frac{1}{4} + \frac{1}{8} + \frac{1}{16} + \dots + \frac{1}{2^n} + \dots = 2,$
- $1 - \frac{1}{2} + \frac{1}{4} - \frac{1}{8} + \frac{1}{16} - \dots \pm \frac{1}{2^n} \mp \dots = \frac{2}{3},$
- $1 - \frac{1}{2} + \frac{1}{3} - \frac{1}{4} + \frac{1}{5} - \dots \pm \frac{1}{n} \mp \dots = \ln 2,$
- $\frac{1}{1 \cdot 2} + \frac{1}{2 \cdot 3} + \frac{1}{3 \cdot 4} + \frac{1}{4 \cdot 5} + \frac{1}{5 \cdot 6} + \dots + \frac{1}{n \cdot (n+1)} + \dots = 1,$
- $\frac{1}{1 \cdot 3} + \frac{1}{3 \cdot 5} + \frac{1}{5 \cdot 7} + \frac{1}{7 \cdot 9} + \frac{1}{9 \cdot 11} + \dots + \frac{1}{(2 \cdot n - 1) \cdot (2 \cdot n + 1)} + \dots = \frac{1}{2},$
- $\frac{1}{1 \cdot 3} + \frac{1}{2 \cdot 4} + \frac{1}{3 \cdot 5} + \frac{1}{4 \cdot 6} + \frac{1}{5 \cdot 7} + \dots + \frac{1}{(n-1) \cdot (n+1)} + \dots = \frac{3}{4},$

- $\frac{1}{1 \cdot 4} + \frac{1}{4 \cdot 7} + \frac{1}{7 \cdot 10} + \frac{1}{10 \cdot 13} + \frac{1}{13 \cdot 16} + \dots + \frac{1}{(3 \cdot n - 2) \cdot (3 \cdot n + 1)} + \dots = \frac{1}{3},$
- $\frac{1}{1 \cdot 4} + \frac{1}{2 \cdot 5} + \frac{1}{3 \cdot 6} + \frac{1}{4 \cdot 7} + \frac{1}{5 \cdot 8} + \dots + \frac{1}{n \cdot (n + 3)} + \dots = \frac{11}{18},$
- $\frac{1}{1 \cdot 7} + \frac{1}{3 \cdot 9} + \frac{1}{5 \cdot 11} + \frac{1}{7 \cdot 13} + \frac{1}{9 \cdot 15} + \dots + \frac{1}{(2 \cdot n - 1) \cdot (2 \cdot n + 5)} + \dots = \frac{23}{90},$
- $\frac{1}{1 \cdot 2 \cdot 3} + \frac{1}{2 \cdot 3 \cdot 4} + \frac{1}{3 \cdot 4 \cdot 5} + \frac{1}{4 \cdot 5 \cdot 6} + \frac{1}{5 \cdot 6 \cdot 7} + \dots + \frac{1}{n \cdot (n + 1) \cdot (n + 2)} + \dots = \frac{1}{4},$
- $\frac{1}{1 \cdot 2 \cdot 3 \cdot \dots \cdot k} + \frac{1}{2 \cdot 3 \cdot 4 \cdot \dots \cdot (k + 1)} + \dots + \frac{1}{n \cdot (n + 1) \cdot \dots \cdot (n + k - 1)} + \dots = \frac{1}{(k - 1) \cdot (k - 1)!},$
- $1 - \frac{1}{3} + \frac{1}{5} - \frac{1}{7} + \frac{1}{9} - \frac{1}{11} + \dots \pm \frac{1}{2 \cdot n - 1} \mp \dots = \frac{\pi}{4},$
- $\frac{1}{3 \cdot 5} + \frac{1}{7 \cdot 9} + \frac{1}{11 \cdot 13} + \frac{1}{15 \cdot 17} + \frac{1}{19 \cdot 21} + \dots + \frac{1}{(4 \cdot n - 1) \cdot (4 \cdot n + 1)} + \dots = \frac{1}{2} - \frac{\pi}{8},$
- $1 + \frac{1}{1!} + \frac{1}{2!} + \frac{1}{3!} + \frac{1}{4!} + \frac{1}{5!} + \dots + \frac{1}{n!} + \dots = e,$
- $1 - \frac{1}{1!} + \frac{1}{2!} - \frac{1}{3!} + \frac{1}{4!} - \frac{1}{5!} + \dots \pm \frac{1}{n!} \mp \dots = \frac{1}{e},$
- $1 + \frac{1}{2^2} + \frac{1}{3^2} + \frac{1}{4^2} + \frac{1}{5^2} + \frac{1}{6^2} + \dots + \frac{1}{n^2} + \dots = \frac{\pi^2}{6},$
- $1 - \frac{1}{2^2} + \frac{1}{3^2} - \frac{1}{4^2} + \frac{1}{5^2} - \frac{1}{6^2} + \dots \pm \frac{1}{n^2} \mp \dots = \frac{\pi^2}{12},$
- $1 + \frac{1}{3^2} + \frac{1}{5^2} + \frac{1}{7^2} + \frac{1}{9^2} + \frac{1}{11^2} + \dots + \frac{1}{(2 \cdot n + 1)^2} + \dots = \frac{\pi^2}{8},$
- $1 + \frac{1}{2^4} + \frac{1}{3^4} + \frac{1}{4^4} + \frac{1}{5^4} + \frac{1}{6^4} + \dots + \frac{1}{n^4} + \dots = \frac{\pi^4}{90},$
- $1 - \frac{1}{2^4} + \frac{1}{3^4} - \frac{1}{4^4} + \frac{1}{5^4} - \frac{1}{6^4} + \dots \pm \frac{1}{n^4} \mp \dots = \frac{7 \cdot \pi^4}{720},$
- $1 + \frac{1}{3^4} + \frac{1}{5^4} + \frac{1}{7^4} + \frac{1}{9^4} + \frac{1}{11^4} + \dots + \frac{1}{(2 \cdot n + 1)^4} + \dots = \frac{\pi^4}{96}.$
- $\frac{1}{3} + \frac{1}{3^2} + \frac{1}{3^3} + \dots + \frac{1}{3^n} + \dots = \frac{1}{2},$
- $\frac{1}{3^2} + \frac{1}{3^3} + \frac{1}{3^4} + \dots + \frac{1}{3^n} + \dots = \frac{1}{6},$
- $-\frac{1}{3} + \frac{1}{3^2} - \frac{1}{3^3} + \dots \pm \frac{1}{3^n} \mp \dots = -\frac{1}{4},$
- $\frac{1}{2} + \frac{3}{2^2} + \frac{5}{2^3} + \dots + \frac{2 \cdot n - 1}{2^n} + \dots = 3.$