S - súčet

$$S_k = 1^k + 2^k + 3^k + \ldots + n^k$$

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pre $k = 1$

$$S_1 = 1 + 2 + 3 + \ldots + n$$

$$S_1 = n + (n+1) + \ldots + 2 + 1$$

$$2\,S_1 = (n+1) + (n+1) + \ldots + (n+1) + (n+1) = n \cdot (n+1)$$

$$S_1 = \frac{n \cdot (n+1)}{2}$$

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pre $k = 2$ aby sme dostali súčet štvorcov

$$S_2 = 1^2 + 2^2 + 3^2 + \ldots + n^2$$

$$(n+1)^3 - n^3 = n^3 + 3n^2 + 3n + 1 - n^3$$

$$(n+1)^3 - n^3 = 3n^2 + 3 + 1$$

$$2^3 - 1^3 = 3\,(1)^2 + 3 \cdot 1 + 1$$

$$3^3 - 2^3 = \ldots$$

$$4^3 - 3^3 = \ldots$$

$$\vdots$$

$$n^3 - (n-1)^3 = \ldots$$

$$(n+1)^3 - (n)^3 = 3n^2 + 3n + 1$$

$$(n+1)^3 - 1^3 = 3 \cdot (1^2 + 2^2 + 3^2 + \ldots + n^2) + 3S_1$$