

$$C_3 = 2 + \frac{1}{3} \left((C_0 + C_2) + (C_1 + C_1) + (C_2 + C_0) \right)$$

$$C_3 = 2 + \frac{2}{3} (C_0 + C_1 + C_2) \quad | \cdot 3$$

$$C_2 = 1 + \frac{2}{2} (C_0 + C_1) \quad | \cdot 2$$

$$nC_n - \underline{(n-1)C_{n-1}} = n(n-1) - \underline{(n-1)(n-2)} + \underline{2C_{n-1}}$$

$$nC_n = \underline{(n+1)C_{n-1}} + 2(n-1)$$

$$\left(\frac{C_5}{6} \right) = \frac{C_4}{5} + \frac{2 \cdot 4}{5 \cdot 6}$$

$$\frac{C_4}{5} = \frac{C_3}{4} + \frac{2 \cdot 3}{4 \cdot 5}$$

$$\frac{C_3}{4} = \frac{C_2}{3} + \frac{2 \cdot 2}{3 \cdot 4}$$

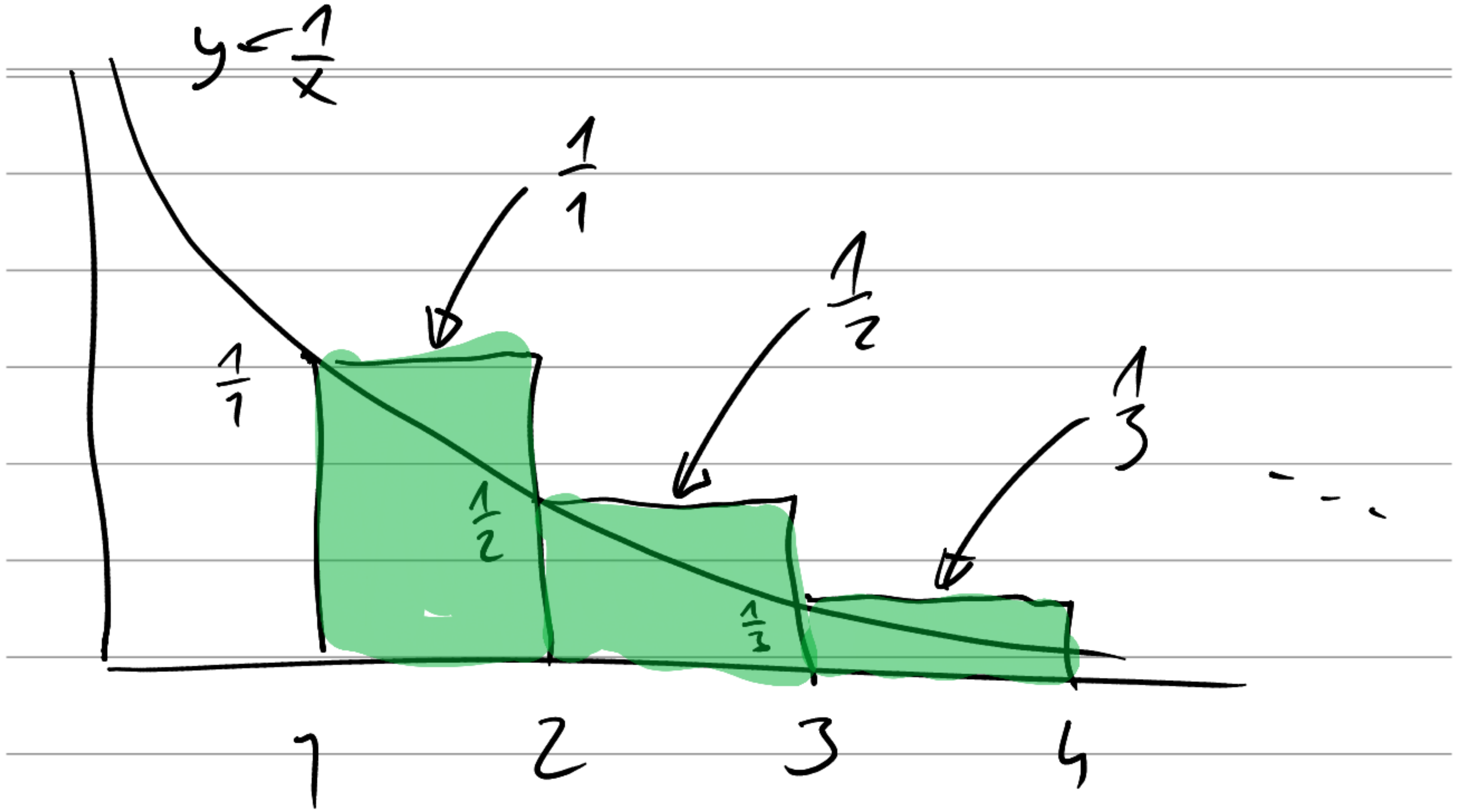
$$\frac{4}{5-6} = \frac{2}{6} - \frac{1}{5}$$

$$\frac{3}{4-5} = \frac{2}{5} - \frac{1}{4}$$

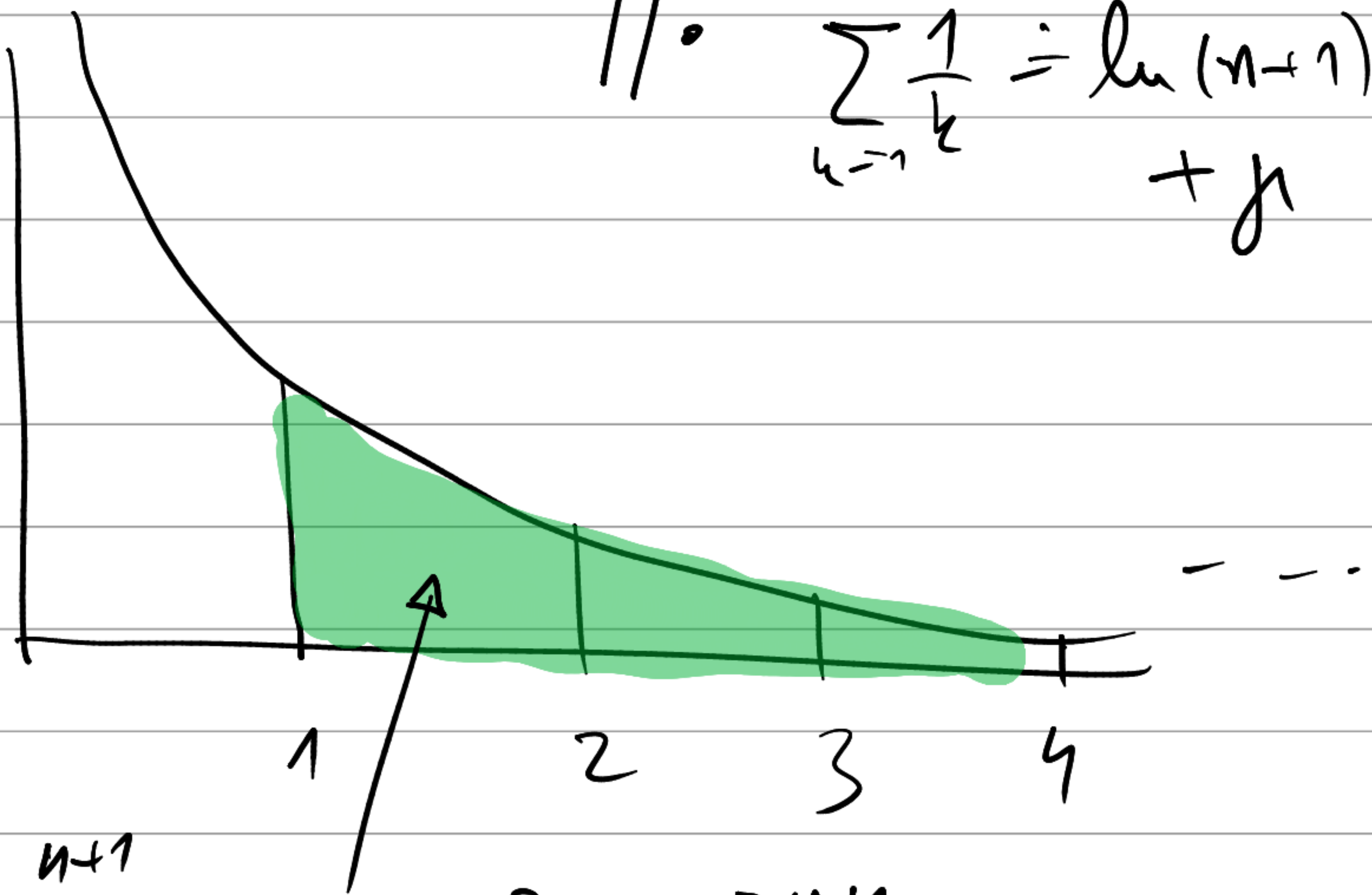
$$\frac{2}{3-4} = \frac{2}{4} - \frac{1}{3}$$

$$\frac{1}{2-3} = \frac{2}{3} - \frac{1}{2}$$

$$\Sigma = \frac{1}{6} + \left(\frac{1}{6} + \frac{1}{5} + \frac{1}{4} + \frac{1}{3} + \frac{1}{2} + \frac{1}{1} \right) - 2$$



|| • $\sum_{k=1}^n \frac{1}{k} = \ln(n+1) + \gamma$



$\int_1^{n+1} \frac{1}{x} dx = [\ln x]_1^{n+1} = \ln(n+1)$

$|M|$ — počet prvků

$$|A \sqcup B| = |A| + |B|$$

↑ disjunktí sjědu.

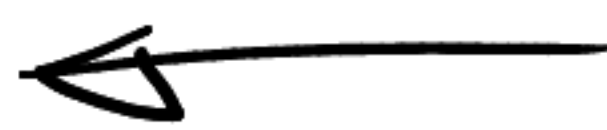
$$|A \times B| = |A| \cdot |B|$$

||

$$|\{a_1\} \times B \sqcup \{a_2\} \times B \sqcup \dots|$$

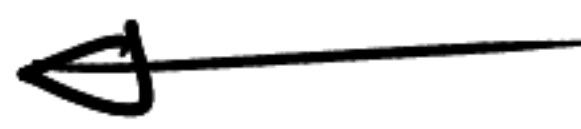
$$= |B| + |B| + \dots = |A| \cdot |B|$$

$S_{1,1}$ — — —



porádku $S \setminus \{s_1\}$

$S_{2,1}$ — — —

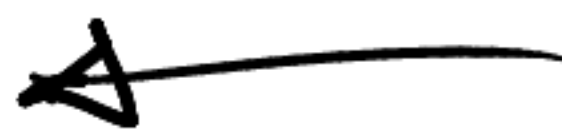


porádku $S \setminus \{s_2\}$

'

'

$S_{n,1}$ — — —



porádku $S \setminus \{s_n\}$

$\binom{n}{k}$ počet výběrů k -prvkové
podm. n . n -prvkové mn.

$$v(n, k) = \frac{n!}{(n-k)!}$$

$$v(n, k) = \binom{n}{k} \cdot k!$$

$$\frac{n!}{(n-k)! \cdot k!} = \binom{n}{k}$$

$$\binom{10}{2} = \frac{10 \cdot 9}{2 \cdot 1} = 45 = \frac{10!}{8! \cdot 2!}$$

$$\binom{0}{0}$$

$$\binom{1}{0} \quad \binom{1}{1}$$

$$\binom{2}{0} \quad \binom{2}{1} \quad \binom{2}{2}$$

⋮ ⋮

$$\binom{15}{4} - \binom{13}{2}$$

ušetření ↑ komise s problémy

S_1	S_2	S_3	S_4	S_5	S_6	S_7	S
1	0	0	1	1	0	0	$\{0,1\}$
↑ pořadí				3x1, 4x0			

|||

3-prvkové podm.
7-prvkové podm.

charakterist.
fce podm.
SET

$$\binom{7}{3} = \frac{7!}{4!3!}$$

1 0 0 1 1 0 0

S_1 S_2 S_3 S_4 S_5 S_6 S_7

2 0 0 4 3 0 0

1 1 | | | 1 1 1 | 1 1 1 | |

9x1 6x1

$$\begin{pmatrix} 15 \\ 9 \end{pmatrix} = \begin{pmatrix} 15 \\ 6 \end{pmatrix}$$

$$|A \cup B| = |A| + |B| - |A \cap B|$$

$$\begin{aligned} |A \cup B \cup C| &= |A| + |B| + |C| \\ &\quad - |A \cap B| - |A \cap C| - |B \cap C| \\ &\quad + |A \cap B \cap C| \end{aligned}$$

$$\underbrace{a + \dots + b}_{n \text{ elemi}} = n \cdot \frac{a+b}{2}$$

$$1 + 2 + \dots + n = n \cdot \frac{n+1}{2}$$

$$0 + 1 + 2 + \dots + n = (n+1) \frac{n+0}{2}$$

$$1 + x + x^2 + \dots + x^n = \frac{1 - x^{n+1}}{1 - x}$$

$$1 + x + x^2 + \dots = \frac{1}{1 - x}$$

1

1 1

1 2 1

1 3 3 1

1 4 6 4 1

1 5 10 10 5 1

$$(x+y)^5 = x^5 + 5x^4y + 10x^3y^2 + 10x^2y^3 + 5xy^4 + y^5$$

$$\underline{(x+y)} \underline{(x+y)} \underline{(x+y)} \underline{(x+y)} \underline{(x+y)}$$

$$(1+x+x^2+x^3+\dots) (1+x^2+x^4+\dots) \\ (1+x^5+x^{10}+\dots) \dots$$

$$\parallel \text{? coef. u } x^{100} \left(\frac{1-x^{100}}{1-x} \right)$$

$$\frac{1}{1-x} \cdot \frac{1}{1-x^2} \cdot \frac{1}{1-x^5} \cdot \frac{1}{1-x^{10}} \cdot \frac{1}{1-x^{20}} \cdot \frac{1}{1-x^{50}}$$