$$\begin{cases} \mathcal{P}_1 \text{ feiner als } \mathcal{P}_2 \\ \mathcal{Q}_1 \text{ feiner als } \mathcal{Q}_2 \end{cases} \implies \mathcal{P}_1 \cap \mathcal{Q}_1 \text{ feiner als } \mathcal{P}_2 \cap \mathcal{Q}_2$$

$$\mathcal{P}_n \text{ equidist partition von } a|b\text{:} \quad \text{Intervalle explizit}$$

$$\mathcal{P}_n \text{ feiner als } \mathcal{P}_m \Leftrightarrow m \text{ teilt } n = mk\text{:} \quad \text{Interval } J \in \mathcal{P}_m \text{ Union von } k \text{ Intervallen } I \in \mathcal{P}_n$$

$$\text{Wann } \mathcal{P}_m \cap \mathcal{P}_n \text{ equidist}$$

$$\int \alpha \daleth = \alpha \int \daleth$$

$$\alpha > 0\text{:} \quad \frac{\varepsilon}{\alpha}$$

$$\alpha < 0\text{:} \quad \underline{\Sigma}_{\mathcal{P}} (-\daleth) = -\bar{\Sigma}_{\mathcal{P}} (\daleth)$$

$$a|c \xrightarrow{\daleth} \mathbb{R} \begin{cases} a|b \\ b|c \end{cases} \xrightarrow[\text{int}]{\daleth} \mathbb{R} \implies \begin{cases} a|c \xrightarrow[\text{int}]{\daleth} \mathbb{R} \\ \int_a^c \daleth = \int_a^b \daleth + \int_b^c \daleth \end{cases}$$

nur Partitionen mit Teilpunkt $b$

$$a|c \xrightarrow{\daleth/\bar{\daleth}} \mathbb{R} \begin{cases} \daleth \text{ int} \\ {}^x\daleth = {}^x\bar{\daleth} \quad x \neq b \end{cases} \implies \begin{cases} \bar{\daleth} \text{ int} \\ \int_a^c \daleth = \int_a^c \bar{\daleth} \end{cases}$$

nur Partitionen mit Teilpunkt $b$

$$x^2/x^3 \text{ auf } 0|1 \Longrightarrow \text{ n-equidist } \underline{\Sigma}_n \text{ isoton } /\bar{\Sigma}_n \text{ antiton/integrierbar } \int\limits_0^1 x^2 = \frac{1}{3}/x^3$$

$$\sum_k^{1|n} k^2 = \frac{1}{6} n\,(n+1)\,(2n+1)$$

$$\sum_k^{1|n} k^3 = \left(\frac{n\,(n+1)}{2}\right)^2$$

$$\alpha > 1: \quad {}^{x}\text{ɿ} = x^{-\alpha} \text{ antiton on } 1|\infty: \quad \alpha = 2$$

$$S_k = \sum_{n \geqslant k} \frac{1}{n^2}: \quad I_k = \int\limits_k^\infty \frac{dx}{x^2} \Longrightarrow S_{k+} \leqslant I_k \leqslant S_k: \quad \int\limits_1^\infty \frac{dx}{x^\alpha} \text{ vgl } \sum_{n \geqslant 1} \frac{1}{n^\alpha}$$

$$a|b \xrightarrow[\text{bes int}]{\begin{cases}\text{ɿ}\\ \text{ɟ}\end{cases}} \mathbb{R} \Longrightarrow a|b \xrightarrow[\text{bes int}]{\begin{cases}\overline{\text{ɿ}}\\ \text{ɿ} \max \text{ɟ} \\ \text{ɿ} \min \text{ɟ}\end{cases}} \mathbb{R}: \quad \overline{\int_a^b \text{ɿ}} \leqslant \int\limits_a^b \overline{\text{ɿ}}$$

$$a|b \xrightarrow[\text{stet}]{\text{ɿ}} \mathbb{R}_+ \int\limits^{a|b} \text{ɿ} = 0 \Longrightarrow \text{ɿ} = 0: \quad \text{Ang } {}^{c}\text{ɿ} > 0 \Longrightarrow \text{ Stet/Widerspruch}$$

$$a|b \xrightarrow[\text{stet}]{\text{ɿ}} \mathbb{R} \overset{\text{int}}{\underset{\text{ZWS}}{\Longrightarrow}} \bigvee_c^{a|b} {}^{c}\text{ɿ} = \frac{1}{b-a} \int\limits_{dt}^{a|b} {}^{t}\text{ɿ}: \quad \text{stet EWS/ZWS}$$

$$a|b \xrightarrow[\text{stet diff}]{\text{ɿ}} \mathbb{R} \overset{\text{int}}{\underset{\text{MWS}}{\Longrightarrow}} \frac{{}^{b}\text{ɿ} - {}^{a}\text{ɿ}}{b-a} = \int\limits_{dt}^{a|b} {}^{a+t\,(b-a)}\underline{\text{ɿ}}$$

$${}^{x}\chi = \begin{cases} 1 & x \in \mathbb{Q} \\ 0 & x \in \mathbb{R} \llcorner \mathbb{Q} \end{cases} \text{ Graph/Ober/Untersum/nicht integrierbar on } (0|1)$$

$${}^{x}\text{ɿ} = \begin{cases} x & x \in \mathbb{Q} \\ 0 & \text{else} \end{cases} \text{ ?int on } 0|1: \quad \int\limits_0^1 \text{ɿ}$$

$$
{}^{x}\daleth_n = \begin{cases} 1 & x = k/n\colon \quad 0 \leqslant k \leqslant n \\ 0 & \text{sonst} \end{cases} \Longrightarrow \mathrm{Int}_{0|1}\colon \quad \int \daleth_n = 0
$$

$$
\int\limits_0^{\pi/2} {}^{x}\cos^2\colon \quad \int\limits_0^{7} {}^{x}\cos^2 + {}^{x}\sin^2
$$

momente

$$
a|b \xrightarrow[\text{stet}]{\daleth} \mathbb{R}\colon \quad M_0 = \int\limits_a^b \daleth = 0 \Longrightarrow \bigvee_{a < x < b} {}^{x}\daleth = 0
$$

$$
\bigwedge_{0 \leqslant n < N} M_n = \int\limits_a^b {}^{x}\daleth\, x^n = 0 \Longrightarrow \bigvee_{a < x_0 \vdots \cdots \vdots x_{N-} < b} \bigwedge_i^N {}^{x_i}\daleth = 0
$$

$$
a|b \xrightarrow[+\text{diff}]{\daleth} \mathbb{R} \Longrightarrow \int\limits_a^b {}^{x}\daleth \cos nx \rightsquigarrow 0
$$