$$\mathbb{R} \xrightarrow[\text{diff}]{\text{ʅ}} \mathbb{R} \Longrightarrow \begin{cases} {}^{x}\text{ʅ}^{b} = {}^{b+x}\text{ʅ} \text{ diff} & {}^{x}\underline{\text{ʅ}}^{b} = {}^{x+b}\underline{\text{ʅ}} \\ {}^{x}_{a}\text{ʅ} = {}^{ax}\text{ʅ} \text{ diff} & {}^{x}_{a}\underline{\text{ʅ}} = a\,{}^{ax}\underline{\text{ʅ}} \end{cases} \text{ Def/Kettenregel}$$

$$\begin{cases} a|b \xrightarrow[\text{diff}]{\text{ʅ}} \mathbb{R} \\ \sup\limits_{a|b} {}^{x}\underline{\text{ʅ}} < +\infty \end{cases} \Longrightarrow \text{ʅ}\,\text{u-stet}_{a|b}$$

$$a|b \xrightarrow[\text{stet/diff}]{\text{ʅ:ʈ}} \mathbb{R} \ \underset{\text{MWS}}{\overset{2}{\Longrightarrow}} \bigvee_{o} \underbrace{{}^{b}\text{ʅ} - {}^{a}\text{ʅ}}\ {}^{o}\underline{\text{ʈ}} = {}^{o}\underline{\text{ʅ}}\ \underbrace{{}^{b}\text{ʈ} - {}^{a}\text{ʈ}}$$

$$\text{Rolle } {}^{x}\text{ʅ}\ \underbrace{{}^{b}\text{ʈ} - {}^{a}\text{ʈ}} - {}^{x}\text{ʈ}\ \underbrace{{}^{b}\text{ʅ} - {}^{a}\text{ʅ}}$$

$$\mathbb{I} \xrightarrow[+\text{ diff}]{\text{ʅ}} \mathbb{R} \ \underset{\text{MWS}}{\Longrightarrow} \lim_{a \leftarrow x \neq y \rightarrow a} \frac{{}^{x}\text{ʅ} - {}^{y}\text{ʅ}}{x-y} = {}^{a}\underline{\text{ʅ}}$$

$$\sqrt{1+x^2} \text{ weak kontraktiv/u-stet on } \mathbb{R}_{+}$$

$$\frac{\sqrt{1+x^2} - \sqrt{1+x^2}}{x-y} = \frac{x+y}{\sqrt{1+x^2} + \sqrt{1+y^2}} \leqslant 1$$

$$\lvert \sin 2x - \sin 2y \rvert \leqslant 2 \lvert x - y \rvert$$

$$\mathbb{I} \xrightarrow[\text{diff}_{3+}]{\text{ʅ}} \mathbb{R} \Longrightarrow {}^{o}\underline{\underline{\text{ʅ}}} \ \underset{0}{\overset{h}{\leftsquigarrow}} \ \frac{{}^{o+h}\text{ʅ} + {}^{o-h}\text{ʅ} - 2\,{}^{o}\text{ʅ}}{h^2}$$

$$\text{ʅ}\,\text{diff}_{n+} \Longrightarrow \bigvee_{o \leqslant x \leqslant o+h} {}^{o+h}\text{ʅ} = \sum_{m}^{n} \frac{{}^{o}\text{ʅ}^{m}}{m!} h^m + \frac{{}^{x}\text{ʅ}^{n}}{n!} h^n$$

$$\mathbb{I} \xrightarrow[\text{diff}]{\text{ʅ}} \mathbb{R} \Longrightarrow \lvert {}^{x}\text{ʅ} - {}^{y}\text{ʅ} - (x-y)\,{}^{o}\underline{\text{ʅ}} \rvert \leqslant \lvert x - y \rvert \sup_{x|y}^{z} \lvert \underline{\text{ʅ}} - {}^{o}\underline{\text{ʅ}} \rvert$$

$$a|b \xrightarrow[2\text{ diff}]{\text{ʅ}} \mathbb{R}: \quad a < x_1 < x_2 < x_3 < b \text{ Nst von } \text{ʅ} \Longrightarrow \bigvee_{x}^{a|b} {}^{x}\underline{\underline{\text{ʅ}}} = 0$$

$$\mathbb{R} \xrightarrow[\text{diff}]{\urcorner} \mathbb{R}\colon \quad {}^{0}\underline{\urcorner} = 0 \Longrightarrow {}^{x}\!\lrcorner\!\!\urcorner = {}^{\overline{x}}\urcorner \text{ diff } \begin{cases} {}^{0}\underline{\daleth} \\ {}^{x}\underline{\daleth} & x \neq 0 \end{cases}$$

$$\text{Prod rule/ex stet/nicht diff } \begin{cases} {}^{x}\urcorner\,{}^{x}\dagger = x \\ {}^{0}\urcorner = 0 = {}^{0}\dagger \end{cases}$$