

Ableitungsregeln

Konstante Funktionen: $f(x) = c$ $f'(x) = 0$

Potenzregel: $f(x) = x^n$ $f'(x) = n \cdot x^{n-1}$

Faktorregel: $f(x) = a \cdot g(x)$ $f'(x) = a \cdot g'(x)$

Summenregel: $f(x) = g(x) \pm h(x)$ $f'(x) = g'(x) \pm h'(x)$

Produktregel: $f(x) = g(x) \cdot h(x)$ $f'(x) = g'(x) \cdot h(x) + g(x) \cdot h'(x)$

Quotientenregel: $f(x) = \frac{g(x)}{h(x)}$ $f'(x) = \frac{g'(x) \cdot h(x) - g(x) \cdot h'(x)}{[h(x)]^2}$

Kettenregel: $f(x) = g(h(x))$ $f'(x) = g'(h(x)) \cdot h'(x)$

Spezielle Funktionen

$$f(x) = \sqrt[n]{x} \qquad f'(x) = \frac{1}{n \cdot \sqrt[n]{x^{n-1}}}$$

$$f(x) = \sin(x) \qquad f'(x) = \cos(x)$$

$$f(x) = \cos(x) \qquad f'(x) = -\sin(x)$$

$$f(x) = \tan(x) \qquad f'(x) = \frac{1}{\cos^2(x)}$$

$$f(x) = e^x \qquad f'(x) = e^x$$

$$f(x) = a^x \qquad f'(x) = a^x \cdot \ln(a)$$

$$f(x) = \ln(x) \qquad f'(x) = \frac{1}{x}$$

$$f(x) = \log_a(x) \qquad f'(x) = \frac{1}{x} \cdot \frac{1}{\ln(a)}$$