BKT

Formelsammlung

Ki

$$a^n \cdot b^n = (a \cdot b)^n$$

$$\frac{a^n}{b^n} = \left(\frac{a}{b}\right)^n$$

$$a^n \cdot a^m = a^{n+m}$$

$$\frac{a^n}{a^m} = a^{n-m}$$

$$(a^n)^m = a^{n \cdot m} = (a^m)^n$$

$$\sqrt[n]{a} \cdot \sqrt[n]{b} = \sqrt[n]{a \cdot b}$$

$$\frac{\sqrt[n]{a}}{\sqrt[n]{b}} = \sqrt[n]{\frac{a}{b}}$$

$$\sqrt[n]{a} \cdot \sqrt[m]{a} = \sqrt[n \cdot m]{a^{n+m}}$$

$$\frac{\sqrt[n]{a}}{\sqrt[m]{a}} = \sqrt[n \cdot m]{a^{m-n}}$$

$$\sqrt[m]{\sqrt[n]{a}} = \sqrt[m \cdot n]{a} = \sqrt[n]{\sqrt[m]{a}}$$

$$\log_a(b \cdot c) = \log_a b + \log_a c$$

$$\log_a \frac{b}{c} = \log_a b - \log_a c$$

$$\log_a b^n = n \cdot \log_a b$$

$$\log_a \sqrt[n]{b} = \frac{1}{n} \cdot \log_a b$$

$$\log_a b = \frac{\log_c b}{\log_c a}$$

$$a_{n+1} = a_n + d \quad \Leftrightarrow$$

$$a_n = a_1 + (n-1) \cdot d \quad \text{mit } n \in \mathbb{N}^* \wedge d \in \mathbb{R}$$

$$S_n = a_1 + (a_1 + d) + (a_1 + 2d) + \ldots + a_1 + (n-1) \cdot d$$

$$S_n = \sum_{k=1}^{n} a_1 + (k-1) \cdot d = \frac{n}{2} \cdot (a_1 + a_n)$$

$$a_{n+1} = a_n \cdot q \quad \Leftrightarrow$$

$$a_n = a_1 \cdot q^{n-1} \quad \text{mit } n \in \mathbb{N}^* \wedge q \in \mathbb{R}^*$$

$$S_n = a_1 + a_1 \cdot q + a_1 \cdot q^2 + \ldots + a_1 \cdot q^{n-1}$$

$$S_n = \sum_{k=1}^{n} a_1 \cdot q^{k-1} = a_1 \cdot \sum_{k=1}^{n} q^{k-1}$$

$$S_n = a_1 \cdot \frac{q^n - 1}{q - 1}$$

$$S_\infty = \sum_{k=1}^{\infty} a_1 \cdot q^{k-1} = \frac{a_1}{1-q}$$

$$f(x) = a \cdot x^n \quad \Rightarrow \quad f'(x) = a \cdot n \cdot x^{n-1}$$

$$f(x) = \sin x \quad \Rightarrow \quad f'(x) = \cos x$$

$$f(x) = e^x \quad \Rightarrow \quad f'(x) = e^x$$

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

$$f(x) = k \cdot g(x) \quad \Rightarrow \quad f'(x) = k \cdot g'(x)$$

$$f(x) = u(x) \pm v(x) \quad \Rightarrow \quad f'(x) = u'(x) \pm v'(x)$$

$$f(x) = u(x) \cdot v(x) \quad \Rightarrow \quad f'(x) = u'(x) \cdot v(x) + u(x) \cdot v'(x)$$

$$f(x) = \frac{u(x)}{v(x)} \quad \Rightarrow \quad f'(x) = \frac{u'(x) \cdot v(x) - u(x) \cdot v'(x)}{v^2(x)}$$

$$f(x) = f(g(x)) \quad \Rightarrow \quad f'(x) = \frac{df}{dg} \cdot \frac{dg}{dx}$$

$$(a+b)^2 = a^2 + 2ab + b^2$$

$$(a-b)^2 = a^2 - 2ab + b^2$$

$$(a+b) \cdot (a-b) = a^2 - b^2$$

$$x^2 + px + q = 0 \quad \Rightarrow$$

$$x_{1/2} = -\frac{p}{2} \pm \sqrt{\left(\frac{p}{2}\right)^2 - q}$$

$$A = \int_{x_1}^{x_2} f(x)\,dx = \Big| _{x_1}^{x_2} F(x) = F(x_2) - F(x_1)$$