Στοιχειώδεις Παράγωγοι

- $\frac{d}{dx}(a) = 0$
- $\frac{d}{dx}[(a \cdot x + b)^n] = n \cdot a \cdot (a \cdot x + b)^{n-1}, n \neq -1$
- $\frac{d}{dx}\left(\sqrt{a \cdot x + b}\right) = \frac{a}{2 \cdot \sqrt{a \cdot x + b}}$
- $\frac{d}{dx}\left(\frac{1}{a \cdot x + b}\right) = -\frac{a}{(a \cdot x + b)^2}$
- $\frac{d}{dx}\left(e^{a \cdot x + b}\right) = a \cdot e^{a \cdot x + b}$
- $\frac{d}{dx}\left(a^{b \cdot x + d}\right) = \frac{d}{dx}\left(e^{(b \cdot x + d) \cdot \ln a}\right) = b \cdot \ln a \cdot e^{(b \cdot x + d) \cdot \ln a} = b \cdot \ln a \cdot a^{b \cdot x + d}, a > 0, a \neq 1$
- $\frac{d}{dx}[\ln(a \cdot x + b)] = \frac{a}{a \cdot x + b}$
- $\frac{d}{dx}[\sin(a \cdot x + b)] = a \cdot \cos(a \cdot x + b)$
- $\frac{d}{dx}[\cos(a \cdot x + b)] = -a \cdot \sin(a \cdot x + b)$
- $\frac{d}{dx}[\tan(a \cdot x + b)] = \frac{a}{\cos^2(a \cdot x + b)}$
- $\frac{d}{dx}[\cot(a \cdot x + b)] = -\frac{a}{\sin^2(a \cdot x + b)}$
- $\frac{d}{dx}[\sinh(a \cdot x + b)] = a \cdot \cosh(a \cdot x + b)$
- $\frac{d}{dx}[\cosh(a \cdot x + b)] = a \cdot \sinh(a \cdot x + b)$
- $\frac{d}{dx}[\tanh(a \cdot x + b)] = \frac{a}{\cosh^2(a \cdot x + b)}$
- $\frac{d}{dx}[\coth(a \cdot x + b)] = -\frac{a}{\sinh^2(a \cdot x + b)}$
- $\frac{d}{dx}\left[\arcsin\left(\frac{x}{a}\right)\right] = \frac{1}{\sqrt{a^2 - x^2}}, -\frac{\pi}{2} \leq \arcsin\left(\frac{x}{a}\right) \leq \frac{\pi}{2}$
- $\frac{d}{dx}\left[\arccos\left(\frac{x}{a}\right)\right] = -\frac{1}{\sqrt{a^2 - x^2}}, 0 \leq \arccos\left(\frac{x}{a}\right) \leq i$
- $\frac{d}{dx}\left[\arctan\left(\frac{x}{a}\right)\right] = \frac{a}{x^2 + a^2}, -\frac{i}{2} \leq \arctan\left(\frac{x}{a}\right) \leq \frac{i}{2}$

ΦΟΙΤΗΤΙΚΟ ΠΡΟΣΗΜΟ

- $\frac{d}{dx}\left[\operatorname{arccot}\left(\frac{x}{a}\right)\right] = -\frac{a}{x^2+a^2}, 0 \leq \operatorname{arccot}\left(\frac{x}{a}\right) \leq i$
- $\frac{d}{dx}\left[\operatorname{arcsinh}\left(\frac{x}{a}\right)\right] = \frac{1}{\sqrt{x^2+a^2}}$
- $\frac{d}{dx}\left[\operatorname{arccosh}\left(\frac{x}{a}\right)\right] = \begin{cases} \frac{1}{\sqrt{x^2-a^2}}, \operatorname{arccosh}\left(\frac{x}{a}\right) > 0, x > a \\ \frac{1}{\sqrt{a^2-x^2}}, \operatorname{arccosh}\left(\frac{x}{a}\right) < 0, x > a \end{cases}$
- $\frac{d}{dx}\left[\operatorname{arctanh}\left(\frac{x}{a}\right)\right] = \frac{a}{a^2-x^2}, x^2 < a^2$
- $\frac{d}{dx}\left[\operatorname{arccoth}\left(\frac{x}{a}\right)\right] = -\frac{a}{x^2-a^2}, x^2 > a^2$

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