

Производные

- $(x^n)' = nx^{n-1}$
- $(a^x)' = a^x \cdot \ln a$
- $(e^x)' = e^x$
- $(\log_a u)' = \frac{u'}{u \ln a}, \quad (\ln u)' = \frac{u'}{u}$
- $(\sin x)' = \cos x, \quad (\cos x)' = -\sin x$
- $(\sqrt{u})' = \frac{u'}{2\sqrt{u}}$
- $(\operatorname{tg} u)' = \frac{u'}{\cos^2 u}, \quad (\operatorname{ctg} x)' = -\frac{u'}{\sin^2 u}$
- $(\arcsin x)' = \frac{1}{\sqrt{1-x^2}}$
- $(\arccos x)' = -\frac{1}{\sqrt{1-x^2}}$
- $(\operatorname{arctg} x)' = \frac{1}{1+x^2}$
- $(\operatorname{arcctg} x)' = -\frac{1}{1+x^2}$
- $(\operatorname{sh} x)' = \operatorname{ch} x$
- $(u^v)' = v \cdot u^{v-1} \cdot u' + u^v \cdot \ln u \cdot v' = \left(\sqrt{1+x^2} \right)' = \frac{x}{\sqrt{x^2+1}}$
- $(\operatorname{ch} x)' = \operatorname{sh} x$
- $(thx)' = \frac{1}{ch^2 x}$
- $(\operatorname{cth} x)' = -\frac{1}{sh^2 x}$
- $(x^x)' = x^x \cdot (1 + \ln x)$
- $\left(\ln \left(x + \sqrt{1+x^2} \right) \right)' = \frac{1}{\sqrt{1+x^2}}$
- $\left(\frac{1}{2} \ln \left(\frac{1+x}{1-x} \right) \right)' = \frac{1}{1-x^2}$
- $(1/x)^{(n)} = \frac{(-1)^n \cdot n!}{x^{n+1}}$
- $(a^x)^{(n)} = a^x \cdot \ln^n x$
- $(\sin x)^{(n)} = \sin \left(x + \frac{\pi n}{2} \right)$
- $(\cos x)^{(n)} = \cos \left(x + \frac{\pi n}{2} \right)$
- $(\ln x)^{(n)} = \frac{(-1)^{(n-1)} \cdot (n-1)!}{x^n}$