

Правила дифференцирования

$$1) \quad c' = 0$$

$$2) \quad (cu)' = cu'$$

$$3) \quad (u \pm v)' = u' \pm v'$$

$$4) \quad (u \cdot v)' = u'v + uv'$$

$$5) \quad \left(\frac{u}{v}\right)' = \frac{u'v - uv'}{v^2}$$

$$6) \quad y' = f'(u) u'$$

$$7) \quad x'(y) = \frac{1}{y'(x)}$$

Таблица производных

$$1) (x^n)' = nx^{n-1}$$

$$2) (e^x)' = e^x$$

$$3) (a^x)' = a^x \ln a, a > 0, a \neq 1$$

$$4) (\ln x)' = \frac{1}{x}$$

$$5) (\log_a x)' = \frac{1}{x \ln a}$$

$$6) (\sin x)' = \cos x$$

$$7) (\cos x)' = -\sin x$$

$$8) (\operatorname{tg} x)' = \frac{1}{\cos^2 x}$$

$$9) (\operatorname{ctg} x)' = -\frac{1}{\sin^2 x}$$

Таблица производных

$$10) (\arcsin x)' = \frac{1}{\sqrt{1-x^2}}$$

$$11) (\arccos x)' = -\frac{1}{\sqrt{1-x^2}}$$

$$12) (\operatorname{arctg} x)' = \frac{1}{1+x^2}$$

$$13) (\operatorname{arctg} x)' = -\frac{1}{1+x^2}$$

Таблица производных для сложной функции

$$1) (u^n)' = nu^{n-1} \cdot u'$$

$$2) (e^u)' = e^u \cdot u'$$

$$3) (a^u)' = a^u \ln a \cdot u'$$

$$4) (\ln u)' = \frac{1}{u} \cdot u'$$

$$5) (\log_a u)' = \frac{1}{u \ln a} \cdot u'$$

$$6) (\sin u)' = \cos u \cdot u'$$

$$7) (\cos u)' = -\sin u \cdot u'$$

Таблица производных для сложной функции

$$8) (\operatorname{tg} u)' = \frac{1}{\cos^2 u} \cdot u'$$

$$9) (\operatorname{ctg} u)' = -\frac{1}{\sin^2 u} \cdot u'$$

$$10) (\operatorname{arcsin} u)' = \frac{1}{\sqrt{1-u^2}} \cdot u'$$

$$11) (\operatorname{arccos} u)' = -\frac{1}{\sqrt{1-u^2}} \cdot u'$$

$$12) (\operatorname{arctg} u)' = \frac{1}{1+u^2} \cdot u'$$

$$13) (\operatorname{arctg} u)' = -\frac{1}{1+u^2} \cdot u'$$