

$$1) (Cu)' = Cu', \quad C - \text{const};$$

$$2) (u \pm v)' = u' \pm v'$$

$$3) (uv)' = u'v + uv'$$

$$4) \left(\frac{u}{v}\right)' = \frac{u'v - uv'}{v^2}$$

$$5) (u(v))' = u'(v) \cdot v'$$

$$(C)' = 0, \quad C - \text{const};$$

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

$$: (\sqrt{x})' = \frac{1}{2\sqrt{x}}, \quad (x)' = 1, \quad \left(\frac{1}{x}\right)' = -\frac{1}{x^2}$$

$$\left(x^{\frac{a}{b}}\right)' = \frac{a}{b} x^{\frac{a}{b}-1} \quad \left(\sqrt[3]{x^5}\right)', \quad \frac{1}{\sqrt[7]{x^2}}, \quad \frac{1}{x^5}, \quad \sqrt{(4x-7)^3}, \quad (x^n)' = nx^{n-1}$$

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

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

$$(a^x)' = a^x \ln a, \quad (e^x)' = e^x$$

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

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

$$(tgx)' = \frac{1}{\cos^2 x}$$

$$(ctgx)' = -\frac{1}{\sin^2 x}$$

$$(\arctgx)' = \frac{1}{1+x^2}$$

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

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

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

$$(shx)' = chx$$

$$(chx)' = shx$$

$$(thx)' = \frac{1}{ch^2 x}$$

$$(cthx)' = \frac{1}{sh^2 x}$$

$$\begin{cases} x = \varphi(t) \\ y = \psi(t) \end{cases}$$

$$y'_x = \frac{\psi'_t(t)}{\varphi'_t(t)}, \quad y''_{xx} = \frac{(y'_x)'_t}{\varphi'_t(t)}$$

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