

1. $C' = 0$
2. $x' = 1$
3. $(\sqrt{x})' = \frac{1}{2\sqrt{x}}$
4. $(a^x)' = a^x \ln a$
5. $(x^\alpha)' = \alpha \cdot x^{\alpha-1}, x \in R$
6. $(e^x)' = e^x$
7. $(\log_a x)' = \frac{1}{x \cdot \ln a}$
8. $(\ln x)' = \frac{1}{x}$
9. $(\sin x)' = \cos x$
10. $(\cos x)' = -\sin x$

11. $(tgx)' = \frac{1}{\cos^2 x}$
12. $(ctg x)' = -\frac{1}{\sin^2 x}$
13. $(\arcsin x)' = \frac{1}{\sqrt{1-x^2}}$
14. $(\arccos x)' = -\frac{1}{\sqrt{1-x^2}}$
15. $(arctg x)' = \frac{1}{1+x^2}$
16. $(arcctg x)' = -\frac{1}{1+x^2}$
17. $(shx)' = chx$
18. $(chx)' = shx$
19. $(thx)' = \frac{1}{ch^2 x_1}$
20. $(cthx)' = -\frac{1}{sh^2 x}$

№ п/п	Интеграл
1	$\int 0dx = C, C = \text{const}$
2	$\int x^n dx = \frac{x^{n+1}}{n+1} + C, n \neq -1$
3	$\int \frac{dx}{x} = \ln(x) + C$
4	$\int a^x dx = \frac{a^x}{\ln a} + C$
5	$\int e^x dx = e^x + C$
6	$\int \sin x dx = -\cos x + C$
7	$\int \cos x dx = \sin x + C$
8	$\int \frac{dx}{\cos^2 x} = \operatorname{tg} x + C$
9	$\int \frac{dx}{\sin^2 x} = -\operatorname{ctg} x + C$
10	$\int \frac{dx}{a^2 + x^2} = \frac{1}{a} \operatorname{arctg} \frac{x}{a} + C$
11	$\int \frac{dx}{\sqrt{a^2 - x^2}} = \arcsin \frac{x}{a} + C, a > 0$
12	$\int \frac{dx}{\sqrt{1 - x^2}} = \arcsin x + C$
13	$\int \frac{dx}{x^2 - a^2} = \frac{1}{2a} \ln \left  \frac{x - a}{x + a} \right  + C$
14	$\int \frac{dx}{\sqrt{x^2 \pm a^2}} = \ln  x + \sqrt{x^2 \pm a^2}  + C$

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$$\begin{aligned} (u^v)' &= v u^{v-1} u' + u^v v' \ln u \\ y' &= y (\ln y)' \\ \left(\frac{u}{v}\right)' &= \frac{u'v - uv'}{v^2} \\ (C u)' &= C u' \\ (u \pm v)' &= u' \pm v' \\ (uv)' &= u'v + uv' \\ \frac{dy}{dx} &= \frac{dy}{du} \cdot \frac{du}{dx} \end{aligned}$$

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