Таблиця інтегралів

1. $\int 0 \cdot dx = C$.

2. $\int k \cdot dx = k \int dx = kx + C$.

3. $\int x^n \cdot dx = \dfrac{x^{n+1}}{n+1} + C$,
   $n \neq -1,\ x > 0$

4. $\int \dfrac{dx}{x} = \ln|x| + C$.

5. $\int \dfrac{dx}{\sqrt{x}} = 2\sqrt{x} + C$

6. $\int a^x dx = \dfrac{a^x}{\ln a} + C$.

7. $\int e^x dx = e^x + C$.

8. $\int \sin x dx = -\cos x + C$.

9. $\int \cos x dx = \sin x + C$.

10. $\int \dfrac{dx}{\sin^2 x} = -\operatorname{ctg} x + C$.

11. $\int \dfrac{dx}{\cos^2 x} = \operatorname{tg} x + C$.

12. $\int \dfrac{dx}{\sqrt{a^2 - x^2}} = \arcsin \dfrac{x}{a} + C,\ |x| < |a|$.

13. $\int \dfrac{dx}{a^2 + x^2} = \dfrac{1}{a} \operatorname{arctg} \dfrac{x}{a} + C$.

14. «Високий» логарифм:

$$\int \frac{dx}{a^2 - x^2} = \frac{1}{2a} \ln\left|\frac{a+x}{a-x}\right| + C,\ |x| \neq a.$$

$$\int \frac{dx}{x^2 - a^2} = \frac{1}{2a} \ln\left|\frac{x-a}{x+a}\right| + C,\ |x| \neq a$$

15. «Довгий» логарифм:

$$\int \frac{dx}{\sqrt{x^2 \pm a^2}} = \ln\left|x + \sqrt{x^2 \pm a^2}\right| + C$$