



## Таблиця інтегралів

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

$$2. \int x^\alpha dx = \frac{x^{\alpha+1}}{\alpha+1} + C, \alpha \neq -1, \text{ зокрема } \int dx = x + C ;$$

$$3. \int \frac{dx}{x} = \ln|x| + C ;$$

$$4. \int a^x dx = \frac{a^x}{\ln a} + C, \text{ зокрема } \int e^x dx = e^x + C$$

$$5. \int \cos x dx = \sin x + C ;$$

$$6. \int \sin x dx = -\cos x + C$$

$$7. \int \frac{dx}{\cos^2 x} = \operatorname{tg} x + C ;$$

$$8. \int \frac{dx}{\sin^2 x} = -\operatorname{ctg} x + C$$

$$9. \int \frac{dx}{\sqrt{a^2 - x^2}} = \begin{cases} \arcsin \frac{x}{a} + C \\ -\arccos \frac{x}{a} + C \end{cases}, \text{ зокрема } \int \frac{dx}{\sqrt{1-x^2}} = \begin{cases} \arcsin x + C \\ -\arccos x + C \end{cases}$$

$$10. \int \frac{dx}{a^2 + x^2} = \begin{cases} \frac{1}{a} \operatorname{arctg} \frac{x}{a} + C \\ -\frac{1}{a} \operatorname{arcctg} \frac{x}{a} + C \end{cases}, \text{ зокрема } \int \frac{dx}{1+x^2} = \begin{cases} \operatorname{arctg} x + C \\ -\operatorname{arcctg} x + C \end{cases}$$

$$11. \int \frac{dx}{x^2 - a^2} = \frac{1}{2a} \ln \left| \frac{x-a}{x+a} \right| + C, \text{ зокрема } \int \frac{dx}{a^2 - x^2} = \frac{1}{2a} \ln \left| \frac{a+x}{a-x} \right| + C$$

$$12. \int \frac{dx}{\sqrt{x^2 \pm a^2}} = \ln \left| x + \sqrt{x^2 \pm a^2} \right| + C,$$

де  $C, a = \text{const}$