ТАБЛИЦА ИНТЕГРАЛОВ

1) $\int 0 * dx = C,\ C = const$
2) $\int dx = x + \mathrm{C},\ f(x) = 1,\ \int 1 * dx = x$
3) $\int x^a dx = \frac{x^{a+1}}{a+1} + \mathrm{C}$, если $a \neq 1$
4) $\int \frac{dx}{x} = ln|\mathrm{x}| + \mathrm{C}$
5) $\int a^x\, dx = \frac{a^x}{lna} + \mathrm{C}$

   Частный случай:

   $\int e^x\, dx = \mathrm{e}^{\mathrm{x}} + \mathrm{C}$
6) $\int sin(x)dx = -cos(x) + \mathrm{C}$
7) $\int cos(x)dx = sin(x) + \mathrm{C}$
8) $\int \frac{dx}{cos^2(x)} = tg(x) + \mathrm{C}$
9) $\int \frac{dx}{sin^2(x)} = -ctg(x) + \mathrm{C}$
10) $\int \frac{dx}{1+x^2} = arctg(x) + \mathrm{C} = -\mathrm{arcctg(x)} + \mathrm{C}$
11) $\int \frac{dx}{\sqrt{1-x^2}} = arcsin(x) + \mathrm{C} = -\mathrm{arccos(x)} + \mathrm{C}$
12) $\int \frac{dx}{\sqrt{a^2+x^2}} = \frac{1}{a} arctg(\frac{x}{a}) + \mathrm{C},\ a = const \neq 0$
13) $\int \frac{dx}{\sqrt{a^2-x^2}} = arcsin(\frac{x}{a}) + \mathrm{C},\ a = const \neq 0$
14) $\int \frac{dx}{\sqrt{x^2+A}} = ln|x + \sqrt{x^2 + A}| + \mathrm{C},\ \mathrm{A} = \mathrm{const} \neq 0$

    $\int \frac{dx}{\sqrt{x^2 \pm a^2}} = ln|x + \sqrt{x^2 \pm a^2}| + \mathrm{C}$
15) $\int \sqrt{a^2 - x^2}dx = \frac{x}{2}\sqrt{a^2 - x^2} + \frac{a^2}{2} arcsin(\frac{x}{a}) + \mathrm{C}$
16) $\int \sqrt{x^2 + A}\, dx = \frac{x}{2}\sqrt{x^2 + A} + \frac{A}{2} ln|x + \sqrt{x^2 + A}| + \mathrm{C}$
17) $\int \frac{dx}{x^2-a^2} = \frac{1}{2a} ln|\frac{x-a}{x+a}| + \mathrm{C}$
18) $\int \frac{dx}{a^2-x^2} = \frac{1}{2a} ln|\frac{x+a}{x-a}| + \mathrm{C}$