

(67) Таблица интегралов.

$$1) \int 0 dx = C$$

$$2) \int dx = x + C$$

$$3) \int x^{\alpha} dx = \frac{x^{\alpha+1}}{\alpha+1} + C$$

$$4) \int \frac{dx}{x} = \ln|x| + C \quad \left(\begin{array}{l} \alpha = -1 \\ \text{случай} \end{array} \right)$$

$$5) \int \sin x dx = -\cos x + C$$

$$6) \int \cos x dx = \sin x + C$$

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

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

$$9) \int \frac{dx}{\sin x} = \ln \left| \operatorname{tg} \frac{x}{2} \right| + C$$

$$10) \int \frac{dx}{\cos x} = \ln \left| \operatorname{tg} \left(\frac{x}{2} + \frac{\pi}{4} \right) \right| + C$$

$$11) \int a^x dx = \frac{a^x}{\ln a} + C$$

$$12) \int e^x dx = e^x$$

$$13) \int \operatorname{ch} x dx = \operatorname{sh} x + C$$

$$14) \int \operatorname{sh} x dx = \operatorname{ch} x + C$$

$$15) \int \frac{dx}{\operatorname{ch}^2 x} = \operatorname{th} x + C$$

$$16) \int \frac{dx}{\operatorname{sh}^2 x} = -\operatorname{cth} x + C$$

$$17) \int \frac{dx}{x^2 + a^2} = \frac{1}{a} \operatorname{arctg} \frac{x}{a} + C, \quad x \neq 0$$

$$18) \int \frac{dx}{x^2 - a^2} = \frac{1}{2a} \ln \left| \frac{x-a}{x+a} \right| + C, \quad a > 0$$

(вещный логарифм)

$$19) \int \frac{dx}{\sqrt{a^2 - x^2}} = \arcsin \frac{x}{a} + C, \quad a > 0$$

$$20) \int \frac{dx}{\sqrt{x^2 \pm a^2}} = \ln \left| x + \sqrt{x^2 \pm a^2} \right| + C$$

$a > 0$
(гиперболический логарифм)