

Таблица интегралов

$$\int dx = x + C$$

$$\int x^n dx = \frac{x^{n+1}}{n+1} + C \quad n \neq -1$$

$$\int x dx = \frac{x^2}{2} + C$$

$$\int x^2 dx = \frac{x^3}{3} + C$$

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

$$\int \frac{dx}{\sqrt{x}} = 2\sqrt{x} + C$$

$$\int \frac{dx}{x^2} = -\frac{1}{x} + C$$

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

$$\int \frac{dx}{x^2 + a^2} = -\frac{1}{a} \operatorname{arcctg} \frac{x}{a} + C$$

$$\int \frac{dx}{\sqrt{a^2 - x^2}} = \arcsin \frac{x}{a} + C$$

$$\int \frac{dx}{\sqrt{a^2 - x^2}} = -\arccos \frac{x}{a} + C$$

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

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

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

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

Таблица дифференциалов –II

$$f'(x)dx = df(x)$$

$$x dx = \frac{1}{2} d(x^2)$$

$$x^2 dx = \frac{1}{3} d(x^3)$$

$$\frac{dx}{x} = d(\ln|x|)$$

$$\frac{dx}{\sqrt{x}} = 2d(\sqrt{x})$$

$$\frac{dx}{x^2} = -d\left(\frac{1}{x}\right)$$

$$\frac{dx}{x^2 + a^2} = \frac{1}{a} d\left(\operatorname{arctg} \frac{x}{a}\right)$$

$$\frac{dx}{x^2 + a^2} = -\frac{1}{a} d\left(\operatorname{arcctg} \frac{x}{a}\right)$$

$$\frac{dx}{\sqrt{a^2 - x^2}} = d\left(\arcsin \frac{x}{a}\right)$$

$$\frac{dx}{\sqrt{a^2 - x^2}} = -d\left(\arccos \frac{x}{a}\right)$$

$$e^x dx = d(e^x)$$

$$a^x dx = \frac{1}{\ln a} d(a^x)$$

$$\cos x dx = d(\sin x)$$

$$\sin x dx = -d(\cos x)$$

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

$$\frac{dx}{\cos^2 x} = d(\operatorname{tg}x)$$

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

$$\frac{dx}{\sin^2 x} = -d(\operatorname{ctg}x)$$

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

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