

1.2 Формулы интегрирования

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

$$2. \int dx = x + C;$$

$$3. \int x^\alpha dx = \frac{x^{\alpha+1}}{\alpha+1} + C, \alpha \neq -1;$$

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

$$5. \int e^x dx = e^x + C;$$

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

$$7. \int \sin x dx = -\cos x + C;$$

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

$$9. \int \frac{dx}{\cos x} = \ln \left| \operatorname{tg} \left(\frac{x}{2} + \frac{\pi}{4} \right) \right| + C;$$

$$10. \int \frac{dx}{\sin x} = \ln \left| \operatorname{tg} \frac{x}{2} \right| + C;$$

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

$$12. \int \frac{dx}{\sin^2 x} = -\operatorname{ctg} x + C;$$

$$13. \int \frac{dx}{\sqrt{a^2 - x^2}} = \arcsin \frac{x}{a} + C;$$

$$14. \int \frac{dx}{\sqrt{1 - x^2}} = \arcsin x + C;$$

$$15. \int \frac{dx}{a^2 + x^2} = \frac{1}{a} \cdot \operatorname{arctg} \frac{x}{a} + C;$$

$$16. \int \frac{dx}{1 + x^2} = \operatorname{arctg} x + C;$$

$$17. \int \frac{dx}{x^2 - a^2} = \frac{1}{2a} \cdot \ln \left| \frac{x-a}{x+a} \right| + C;$$

$$18. \int \frac{dx}{\sqrt{x^2 \pm a}} = \ln \left| x + \sqrt{x^2 \pm a} \right| + C.$$