Билет 2. Таблица интегралов

1. $\int dx = x + c$

2. $\int x^{\alpha} dx = \frac{x^{\alpha+1}}{\alpha+1} + c, \alpha \neq -1$

3. $\int a^{x} dx = \frac{a^{x}}{\ln a} + c$

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

5. $\int \cos x dx = \sin x + c$

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

7. $\int \frac{dx}{\cos^2 x} = tgx + c$

8. $\int \frac{dx}{\sin^2 x} = -ctgx + c$

9. $\int \frac{dx}{\sin x} = \ln\left|tg\frac{x}{2}\right| + c$

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

11. $\int \frac{dx}{\sin x} = \ln\left|tg\frac{x}{2}\right| + c$

12. $\int \frac{dx}{a^2 + x^2} = \begin{cases} \frac{1}{a} arctg\frac{x}{a} + c \\ -\frac{1}{a} arcctg\frac{x}{a} + c \end{cases}$

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

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

15. $\int \frac{dx}{\sqrt{a^2 - x^2}} = \begin{cases} \arcsin\frac{x}{a} + c \\ -\arccos\frac{x}{a} + c \end{cases}$

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

17. $\int shxdx = chx + c$

18. $\int chxdx = shx + c$

19. $\int \frac{dx}{ch^2 x} = thx + c$

20. $\int \frac{dx}{sh^2 x} = -cthx + c$

Таблица основных интегралов

P.S. 17-20 можно не учить, наверное.