

## ТАБЛИЦА 35

## ИНТЕГРАЛЫ ВИДА

$$\int \sin^{\pm m} px \cos^{\pm n} qx dx; \quad m=1, 2, 3, \dots, \quad n=1, 2, 3, \dots,$$

$$35.1. \int \sin x \cos x dx = \frac{\sin^2 x}{2}.$$

$$35.2. \int \sin x \cos^n x dx = -\frac{\cos^{n+1} x}{n+1}.$$

$$35.3. \int \sin^m x \cos x dx = \frac{\sin^{m+1} x}{m+1}.$$

$$35.4. \int \sin^2 x \cos^2 x dx = \frac{1}{8} \left( x - \frac{\sin 4x}{4} \right).$$

$$35.5. \int \sin^2 x \cos^3 x dx = \frac{\sin^2 x \cos^2 x}{5} + \frac{2}{15} \sin^3 x.$$

$$35.6. \int \sin^m x \cos^n x dx = \frac{\sin^{m+1} x \cos^{n-1} x}{m+n} + \frac{n-1}{m+n} \int \sin^m x \cos^{n-2} x dx$$

$$35.7. \int \sin px \cos^n x dx = -\frac{\cos^n x \cos px}{p+n} + \frac{n}{p+n} \int \cos^{n-1} x \sin(p-1)x dx$$

$$35.8. \int \sin^m x \cos qx dx = \frac{\sin^m x \sin qx}{m+q} - \frac{m}{m+q} \int \sin^{m-1} x \sin(q-1)x dx \quad (\text{см. 31.2}).$$

$$35.9. \int \frac{dx}{\sin x \cos x} = \ln |\operatorname{tg} x|.$$

$$35.10. \int \frac{dx}{\sin x \cos^n x} = \frac{1}{(n-1) \sin^{n-1} x} + \int \frac{dx}{\sin x \cos^{n-2} x} \quad (n \geq 2).$$

$$35.11. \int \frac{dx}{\sin^m x \cos x} = \frac{-1}{(m-1) \sin^{m-1} x} + \int \frac{dx}{\sin^{m-2} x \cos x} \quad (m \geq 2)$$

$$35.12. \int \frac{dx}{\sin^m x \cos^n x} = \frac{1}{(n-1) \sin^{n-1} x \cos^{n-1} x} + \frac{m+n-2}{n-1} \int \frac{dx}{\sin^m x \cos^{n-2} x} \quad (n \geq 2);$$

$$= -\frac{1}{(m-1) \sin^{m-1} x \cos^{m-2} x} + \frac{m+n-2}{m-1} \int \frac{dx}{\sin^{m-2} x \cos^n x} \quad (m \geq 2).$$

$$35.13. \int \frac{\sin 2x}{\cos x} dx = -2 \cos x.$$

$$35.14. \int \frac{\sin 2x}{\cos^2 x} dx = -2 \ln |\cos x|.$$

$$35.15. \int \frac{\sin 3x}{\cos x} dx = 2 \sin^2 x + \ln |\cos x|.$$

$$35.16. \int \frac{\sin 3x}{\cos^2 x} dx = -4 \cos x - \frac{1}{\cos x}$$

$$35.17. \int \frac{\sin 3x}{\cos^3 x} dx = -\frac{1}{2 \cos^2 x} - 4 \ln |\cos x|.$$

$$35.18. \int \frac{\sin 3x}{\cos^n x} dx = \frac{4}{(n-3) \cos^{n-2} x} - \frac{1}{(n-1) \cos^{n-1} x} \quad (n \geq 4).$$

$$35.19. \int \frac{\cos 2x}{\sin x} dx = 2 \cos x + \ln \left| \operatorname{tg} \frac{x}{2} \right|$$

$$35.20. \int \frac{\cos 2x}{\sin^2 x} dx = -\operatorname{ctg} x - 2x.$$

$$35.21. \int \frac{\cos 3x}{\sin x} dx = -2 \sin^2 x + \ln |\sin x|.$$

$$35.22. \int \frac{\cos 3x}{\sin^2 x} dx = -4 \sin x - \frac{1}{\sin x}.$$

$$35.23. \int \frac{\cos 3x}{\sin^3 x} dx = -\frac{1}{2 \sin^2 x} - 4 \ln |\sin x|.$$

$$35.24. \int \frac{\cos 3x}{\sin^m x} dx = \frac{4}{(m-3) \sin^{m-2} x} - \frac{1}{(m-1) \sin^{m-1} x} \quad (m \geq 4).$$

$$35.25. \int \frac{\sin px}{\cos^n x} dx = 2 \int \frac{\sin(p-1)x}{\cos^{n-1} x} dx - \int \frac{\sin(p-2)x}{\cos^n x} dx.$$

$$35.26. \int \frac{\cos qx}{\sin^m x} dx = -2 \int \frac{\sin(q-1)x}{\sin^{m-1} x} dx + \int \frac{\cos(q-2)x}{\sin^m x} dx \quad (\text{см. 31.21}).$$