

Урок 5. Интегрирования тригонометрических функций

$\int \cos x dx = \sin x + C$	$\int \frac{1}{\cos^2 x} dx = \operatorname{tg} x + C$
$\int \sin x dx = -\cos x + C$	$\int \frac{1}{\sin^2 x} dx = -\operatorname{ctg} x + C$

$$1. \int \left(\cos x - 2 \sin x + \frac{1}{2 \cos^2 x} \right) dx$$

$$2. \int \left(\frac{1}{\sin^2 x} + \frac{4}{\cos^2 x} \right) dx$$

$$3. \int (2x^3 + \sin x) dx$$

$$4. \int \left(-\frac{\cos x}{2} + 3 \sin x \right) dx$$

$$5. \int (4\sqrt{x} - 5 \cos x) dx$$

$$6. \int \left(5x^{15} - \frac{4}{\sin^2 x} - 15 \right) dx$$

$$7. \int \left(-3 \sin x + \frac{2}{3} \cos x \right) dx$$

$$8. \int \left(x - 4 \sin x + \frac{5}{\cos^2 x} \right) dx$$

$$9. \int (\cos^2 x + \sin^2 x) dx$$

$$10. \int 2 \sin \left(x - \frac{\pi}{2} \right) dx$$

$$11. \int \cos 2x dx$$

$$12. \int \sin 3x dx$$

$$13. \int \cos \frac{x}{4} dx$$

$$14. \int \sin \frac{x}{5} dx$$

$$15. \int \frac{1}{\cos^2 4x} dx$$

$$16. \int \frac{1}{\sin^2 5x} dx$$

$$17. \int \frac{3}{\sin^2 \frac{x}{4}} dx$$

$$18. \int \frac{5 dx}{\cos^2 \frac{x}{6}}$$

$$21. \int \cos(2x + 1) dx$$

$$22. \int \sin(3x - 6) dx$$

$$19. \int (3 \sin 2x + \cos 7x) dx$$

$$20. \int \left(4 \cos \frac{x}{3} - 2 \sin 3x \right) dx$$

$$23. \int (5x - 2)^7 dx$$

$$24. \int (4x - 8)^5 dx$$

$$25. \int \left(\frac{x}{3} - 23 \right)^{23} dx$$

$$26. \int \left(\frac{1}{\sin^2 \left(2x - \frac{\pi}{3} \right)} - (3x - 1)^8 \right) dx$$

$$27. \int \left((4x - 5)^{12} - \frac{1}{\cos^2 \left(4x + \frac{\pi}{6} \right)} \right) dx$$

$$28. 2 \int \left(\left(\frac{x}{3} - 5 \right)^3 - (27x + 1) \right) dx$$

$$29. \int \left(\sin(3x - 5) + \cos \left(\frac{x}{2} - 1 \right) - (5x - 6)^4 \right) dx$$

$$30^*. \int (\operatorname{tg} x + \operatorname{ctg} x)^2 dx$$