

## § 5.2. Практическая работа (решение задач)

Найти интегралы:

$$8.5.2. \quad \int \frac{dx}{\sin x}.$$

$$8.5.3. \quad \int \frac{dx}{5 \cos x + 3}.$$

$$8.5.5. \quad \int \frac{dx}{3 \sin^2 x + 5 \cos^2 x}.$$

$$8.5.6. \quad \int \frac{dx}{\sin^5 x \cdot \cos x}.$$

$$8.5.8. \quad \int \sin^3 x \, dx.$$

$$8.5.9. \quad \int \frac{\cos^3 x \, dx}{\sin^4 x}.$$

$$8.5.11. \quad \int \cos^4 x \, dx.$$

$$8.5.12. \quad \int \sin^2 x \cdot \cos^2 x \, dx.$$

$$8.5.14. \quad \int \cos 2x \cdot \sin 4x \, dx.$$

$$8.5.15. \quad \int \sin \frac{x}{2} \sin \frac{3x}{2} \, dx.$$

$$8.5.17. \quad \int \operatorname{ctg}^3 x \, dx.$$

$$8.5.18. \quad \int \operatorname{tg}^2 x \, dx.$$

### Ответы

$$8.5.2. \ln \left| \operatorname{tg} \frac{x}{2} \right| + C. \quad 8.5.3. \frac{1}{4} \ln \left| \frac{\operatorname{tg} \frac{x}{2} + 2}{\operatorname{tg} \frac{x}{2} - 2} \right| + C. \quad 8.5.5. \frac{1}{\sqrt{15}} \cdot \operatorname{arctg} \left( \sqrt{\frac{3}{5}} \operatorname{tg} x \right) + C.$$

$$8.5.6. C - \frac{1}{4} \operatorname{ctg}^4 x - \operatorname{ctg}^2 x + \ln |\operatorname{tg} x|. \quad 8.5.8. \frac{1}{3} \cos^3 x - \cos x + C.$$

$$8.5.9. \frac{1}{\sin x} - \frac{1}{3 \sin^3 x} + C. \quad 8.5.11. \frac{3}{8} x + \frac{1}{4} \sin 2x + \frac{1}{32} \sin 4x + C.$$

$$8.5.12. \frac{1}{8} x - \frac{1}{32} \sin 4x + C. \quad 8.5.14. C - \frac{1}{12} \cos 6x - \frac{1}{4} \cos 2x.$$

$$8.5.15. \frac{1}{2} \sin x - \frac{1}{4} \sin 2x + C. \quad 8.5.17. C - \frac{\operatorname{ctg}^2 x}{2} - \ln |\sin x|. \quad 8.5.18. \operatorname{tg} x - x + C.$$