

## ДОМАШНА РАБОТА №6

1) Пресметнете интеграла:

$$1.1. \int (4x+1)e^{2x} dx;$$

$$1.2. \int (6x+7)e^{-x} dx;$$

$$1.3. \int (6x-5)e^{3x} dx;$$

$$1.4. \int (4x-3)e^{-2x} dx;$$

$$1.5. \int (8x-7)e^{4x} dx;$$

$$1.6. \int (6x+1)e^{-3x} dx;$$

$$1.7. \int (10x+3)e^{5x} dx;$$

$$1.8. \int (8x+5)e^{-4x} dx;$$

$$1.9. \int (6x+5)e^{6x} dx;$$

$$1.10. \int (5x-4)e^{-5x} dx.$$

2) Пресметнете интеграла:

$$2.1. \int (8x+3)\sin 4x dx;$$

$$2.2. \int (5x-4)\cos 5x dx;$$

$$2.3. \int (6x+1)\sin \frac{x}{2} dx;$$

$$2.4. \int (2x-1)\cos \frac{x}{3} dx;$$

$$2.5. \int (8x-3)\sin \frac{x}{3} dx;$$

$$2.6.; \int (3x-4)\cos \frac{x}{2} dx;$$

$$2.7. \int (9x-5)\sin 3x dx;$$

$$2.8. \int (4x-3)\cos 2x dx;$$

$$2.9. \int (5x+3)\sin 5x dx;$$

$$2.10. \int (9x+2)\cos 3x dx.$$

3) Пресметнете интеграла:

$$3.1. \int (4x+3)\ln x dx;$$

$$3.2. \int (6x^2+5)\ln x dx;$$

$$3.3. \int (4x^3-3)\ln 2x dx;$$

$$3.4. \int (5x^4+4)\ln 3x dx;$$

$$3.5. \int (8x^3+4x-6)\ln x dx;$$

$$3.6. \int (10x^4-6x+8)\ln x dx;$$

$$3.7. \int \sqrt{x} \ln x dx;$$

$$3.8. \int \sqrt[3]{x^2} \ln x dx;$$

$$3.9. \int \frac{\ln x}{x^3} dx;$$

$$3.10. \int \frac{\ln x}{\sqrt{x}} dx.$$

4) Пресметнете интеграла:

$$4.1. \int \operatorname{arctg} 2x \, dx;$$

$$4.2. \int \operatorname{arccotg} 3x \, dx;$$

$$4.3. \int \operatorname{arcsin} 2x \, dx;$$

$$4.4. \int \operatorname{arccos} 3x \, dx;$$

$$4.5. \int x \operatorname{arctg} 3x \, dx;$$

$$4.6. \int x \operatorname{arccotg} 2x \, dx;$$

$$4.7. \int \ln(x+5) \, dx;$$

$$4.8. \int \ln(2x-3) \, dx;$$

$$4.9. \int \ln(x^2+4) \, dx;$$

$$4.10. \int \ln(x^2+9) \, dx.$$

5) Пресметнете интеграла чрез полагане:

$$5.1. \int \frac{2x+5}{x^2+2x-3} \, dx;$$

$$5.2. \int \frac{3x+4}{x^2-6x+5} \, dx;$$

$$5.3. \int \frac{4x-1}{x^2+x-2} \, dx;$$

$$5.4. \int \frac{6x+3}{x^2-3x+2} \, dx;$$

$$5.5. \int \frac{3x+7}{x^2+4x+4} \, dx;$$

$$5.6. \int \frac{2x-9}{x^2-6x+9} \, dx;$$

$$5.7. \int \frac{2x+9}{x^2-4x+13} \, dx;$$

$$5.8. \int \frac{3x+4}{x^2+6x+10} \, dx;$$

$$5.9. \int \frac{2x+3}{x^2+2x+10} \, dx;$$

$$5.10. \int \frac{4x-5}{x^2-2x+5} \, dx.$$

6) Пресметнете интеграла:

$$6.1. \int \frac{3x+8}{x^2-4} \, dx;$$

$$6.2. \int \frac{5x+9}{x^2-9} \, dx;$$

$$6.3. \int \frac{4x+1}{x^2-2x} \, dx;$$

$$6.4. \int \frac{6x+5}{x^2+x} \, dx;$$

$$6.5. \int \frac{2x-5}{x^2-2x-8} \, dx;$$

$$6.6. \int \frac{3x+4}{x^2-5x+6} \, dx;$$

$$6.7. \int \frac{4x-3}{x^2+7x+12} \, dx;$$

$$6.8. \int \frac{4x+1}{x^2-6x-7} \, dx;$$

$$6.9. \int \frac{x}{x^2+2x-15} \, dx;$$

$$6.10. \int \frac{x}{x^2+4x-5} \, dx.$$

7) Пресметнете интеграла:

$$7.1. \int \frac{x-10}{x^3-x^2-2x} dx;$$

$$7.2. \int \frac{x-12}{x^3+3x^2-4x} dx;$$

$$7.3. \int \frac{x^2+5}{x^3-2x^2-8x} dx;$$

$$7.4. \int \frac{x^2+10}{x^3-x^2-12x} dx;$$

$$7.5. \int \frac{2x-5}{x^3-x} dx;$$

$$7.6. \int \frac{3x-8}{x^3-4x} dx;$$

$$7.7. \int \frac{2x+18}{x^3-9x} dx;$$

$$7.8. \int \frac{x^2+6}{x^3-x} dx;$$

$$7.9. \int \frac{x^2+12}{x^3-4x} dx;$$

$$7.10. \int \frac{x^2+9}{x^3-9x} dx.$$

8) Пресметнете интеграла:

$$8.1. \int \frac{2x-7}{x^3+x} dx;$$

$$8.2. \int \frac{x-8}{x^3+4x} dx;$$

$$8.3. \int \frac{3x+18}{x^3+9x} dx;$$

$$8.4. \int \frac{x^2+5}{x^3+x} dx;$$

$$8.5. \int \frac{x^2-12}{x^3+4x} dx;$$

$$8.6. \int \frac{2x^2-9}{x^3+9x} dx;$$

$$8.7. \int \frac{x^2-2x+5}{x^3+x} dx;$$

$$8.8. \int \frac{x^2+6x+4}{x^3+4x} dx;$$

$$8.9. \int \frac{x^2-x+9}{x^3+9x} dx;$$

$$8.10. \int \frac{x^2+x-3}{x^3+x} dx.$$

9) Пресметнете интеграла:

$$9.1. \int \frac{3x+1}{x^3+x^2} dx;$$

$$9.2. \int \frac{3x+4}{x^3+2x^2} dx;$$

$$9.3. \int \frac{5x-9}{x^3-3x^2} dx;$$

$$9.4. \int \frac{3x+8}{x^3-4x^2} dx;$$

$$9.5. \int \frac{x-10}{x^3+2x^2+x} dx;$$

$$9.6. \int \frac{5x-12}{x^3+4x^2+4x} dx;$$

$$9.7. \int \frac{3x+14}{x^3-2x^2+x} dx;$$

$$9.8. \int \frac{x+18}{x^3-6x^2+9x} dx;$$

$$9.9. \int \frac{2x+5}{x^3-x^2} dx;$$

$$9.10. \int \frac{2x+9}{x^3+9x^2} dx.$$

10) Пресметнете интеграла:

$$10.1. \int \frac{dx}{\sin x + 3 \cos x + 4} ;$$

$$10.2. \int \frac{dx}{2 \sin x + 5 \cos x + 6} ;$$

$$10.3. \int \frac{dx}{\sin x + 2 \cos x + 3} ;$$

$$10.4. \int \frac{dx}{2 \sin x + 6 \cos x + 7} ;$$

$$10.5. \int \frac{dx}{13 - 12 \sin x + 5 \cos x} ;$$

$$10.6. \int \frac{dx}{25 - 24 \sin x + 7 \cos x} ;$$

$$10.7. \int \frac{dx}{5 - 3 \sin x + 4 \cos x} ;$$

$$10.8. \int \frac{dx}{4 - 5 \sin x + 3 \cos x} ;$$

$$10.9. \int \frac{dx}{\sin x - \cos x - 2} ;$$

$$10.10. \int \frac{dx}{3 \sin x + \cos x + 2} .$$

11) Пресметнете интеграла:

$$11.1. \int \frac{dx}{x\sqrt{x^2 + 8x - 9}} ;$$

$$11.2. \int \frac{dx}{x\sqrt{x^2 + 3x - 4}} ;$$

$$11.3. \int \frac{dx}{x\sqrt{-x^2 - 8x + 9}} ;$$

$$11.4. \int \frac{dx}{x\sqrt{-x^2 - 3x + 4}} ;$$

$$11.5. \int \frac{dx}{x\sqrt{4x^2 - 5x + 1}} ;$$

$$11.6. \int \frac{dx}{x\sqrt{x^2 - 5x + 4}} ;$$

$$11.7. \int \frac{dx}{x\sqrt{x^2 - 8x + 1}} ;$$

$$11.8. \int \frac{dx}{x\sqrt{x^2 + 8x + 9}} ;$$

$$11.9. \int \frac{dx}{x\sqrt{-x^2 + 7x - 6}} ;$$

$$11.10. \int \frac{dx}{x\sqrt{-x^2 + 3x - 2}} .$$

12) Пресметнете интеграла:

$$12.1. \int \frac{\sqrt{x} dx}{x(\sqrt[3]{x} + \sqrt[4]{x})} ;$$

$$12.2. \int \frac{\sqrt[3]{x} dx}{x(\sqrt[3]{x} + \sqrt{x})} ;$$

$$12.3. \int \frac{(1 + \sqrt[6]{x})^2}{\sqrt[3]{x}} dx ;$$

$$12.4. \int \frac{1 + \sqrt{x} - \sqrt[3]{x}}{1 + \sqrt[3]{x}} dx ;$$

$$12.5. \int \frac{\sqrt{x}}{\sqrt{x} + 1} dx ;$$

$$12.6. \int \frac{1}{\sqrt{x} + 1} dx ;$$

$$12.7. \int \frac{\sin \sqrt{x}}{\sqrt{x}} dx ;$$

$$12.8. \int \frac{\sin \sqrt{x}}{\sqrt{x}} dx ;$$

$$12.9. \int \frac{e^{\sqrt{x}}}{\sqrt{x}} dx ;$$

$$12.10. \int x\sqrt{x+4} dx .$$