

ZADACI ZA SAMOSTALNI RAD 1

1) Rešiti sledeće integrale:

$$\begin{array}{llll}
 1. \int (x^3 + \frac{2}{\cos^2 x}) dx & 2. \int \frac{(x-2)^2}{x^3} dx & 3. \int \frac{\sqrt{x}}{x} dx & 4. \int \frac{dx}{\sqrt{2-x^2}} \\
 5. \int \frac{dx}{\sqrt{x^2+16}} & 6. \int \frac{6dx}{\sqrt{x^2-5}} & 7. \int (\sqrt{x} - \cos x) dx & 8. \int \frac{\sqrt{5} dx}{5+x^2} \\
 9. \int (\sqrt[3]{x^4} + \frac{5}{2} \ln x) dx & 10. \int (\operatorname{tg}^2 x - \frac{1}{\cos^2 x}) dx & 11. \int \frac{1+\cos^2 x}{1+\cos 2x} dx & 12. \int \frac{2e^x x - 5e^{2x}}{e^x} dx
 \end{array}$$

2) Rešiti sledeće integrale:

$$\begin{array}{llll}
 1. \int x(\sqrt{2-5x^2}) dx & 2. \int \frac{x}{\sqrt[3]{1-3x^2}} dx & 3. \int x(1+3x^2)^5 dx & \\
 4. \int (1+\sqrt{x})^{23} dx & 5. \int x(\sqrt{2-5x}) dx & 6. \int \frac{x}{\sqrt[3]{2-5x}} dx & \\
 7. \int \frac{dx}{\arcsin^2 x \sqrt{1-x^2}} dx & 8. \int \frac{2^{\operatorname{arctg} x}}{1+x^2} dx & 9. \int e^{3 \cos x} \sin x dx & \\
 10. \int x^2 e^{x^3} dx & 11. \int \frac{e^{\frac{1}{x}}}{x^2} dx & 12. \int \frac{e^x}{e^x-1} dx & \\
 13. \int \cos^2 x dx & 14. \int \sin^2 x \cos x dx & 15. \int \frac{\operatorname{arctg} x}{1+x^2} dx & \\
 16. \int \operatorname{tg} x dx & 17. \int \frac{\ln x}{x\sqrt{1+\ln x}} dx & 18. \int \operatorname{ctg} x dx & \\
 19. \int \frac{\sin x \cdot \cos x}{\sqrt{2 \sin^2 x + \cos^2 x}} dx & 20. \int \frac{\cos x}{\sqrt{2 \sin^2 x + \cos^2 x}} dx & 21. \int \frac{\sin x}{\sqrt{2 \sin^2 x + \cos^2 x}} dx & \\
 22. \int \frac{dx}{\sin^2 x \cos^2 x} & 23. \int \frac{\sin x - \cos x}{\sin x + \cos x} dx & 24. \int \frac{\cos x + \sin x}{\sqrt[3]{\sin x - \cos x}} dx & \\
 25. \int \frac{3x^2}{x^3+4} dx & 26. \int \frac{2x-3}{x^2-3x+1} dx & 27. \int (6x+5)(3x^2+5x-2)^{-3} dx & \\
 28. \int \frac{2x^3-4}{(\frac{1}{2}x^4-4x-2)^4} dx & 29. \int \frac{18x^5}{x^6+4} dx & 30. \int \frac{x^2 dx}{x^6+4} & \\
 31. \int \frac{\operatorname{arctg} \frac{x}{2}}{4+x^2} dx & 32. \int \frac{x-\sqrt{\operatorname{arctg} 2x}}{1+4x^2} dx & 33. \int \frac{4dx}{x \cos^2(1+\ln x)} & \\
 34. \int \frac{e^{\operatorname{arctg} x} + x \ln(1+x^2) + 1}{1+x^2} dx & 35. \int \sqrt{\frac{\ln(x+\sqrt{1+x^2})}{1+x^2}} dx & 36. \int \frac{1+x}{1+\sqrt{x}} dx & \\
 37. \int (3 \sin^5 x - 2 \sin^3 x + 4 \sin x - 7) \cos x dx & 38. \int \frac{\sin^3 x}{\cos^2 x} dx & 39. \int \frac{1-3x}{3+2x} dx & \\
 40. \int x^2 \ln(x^3-2) & 41. \int \frac{e^{2x}+1}{e^x+1} dx & 42. \int \frac{x^2(3x^3+1)}{3x^6+2x^3+2} dx &
 \end{array}$$

3) Rešiti sledeće integrale:

$$\begin{array}{llll}
 1. \int \ln(2x) dx & 2. \int (x+1) \ln(2x-1) dx & 3. \int x^2 \ln(3x) dx & 4. \int 2x^3 \ln x dx \\
 5. \int (x-5)e^x dx & 6. \int (x^2+1)e^x dx & 7. \int x^2 e^{x+1} dx & 8. \int \frac{x^2}{(1+x^2)^2} dx \\
 9. \int \arcsin x dx & 10. \int \operatorname{arctg} x dx & 11. \int \arccos x dx & 12. \int x^2 \operatorname{arctg} x dx \\
 13. \int \frac{\ln x}{x^2} dx & 14. \int \frac{3xe^x}{(1+x)^2} dx & 15. \int \frac{\ln^3 x}{x^2} dx & 16. \int x^5 e^{-x^2} dx \\
 17. \int \frac{x^2-2x+5}{e^x} dx & 18. \int (x^3+1) \cos 2x dx & 19. \int (x^2+1) \operatorname{arctg} \sqrt{x^2-1} dx & 20. \int x^2(x \sin x - \cos x) dx
 \end{array}$$