

Matematyka; Zestaw 1

Proszę znaleźć następujące całki:

Proste całki:

$$1. \int x^3 + x^2 dx$$

$$2. \int 3x^5 dx$$

$$3. \int 5x^2 + \frac{7}{x^2} dx$$

$$4. \int 4x\sqrt{x} + 2x^3 dx$$

$$5. \int 2x^2 + \frac{3\sqrt[3]{x}}{x^2} dx$$

$$6. \int 7x^2\sqrt{x} - \frac{3x\sqrt[4]{x}}{x^2} dx$$

$$7. \int \frac{2x + 5x^3}{x^2} dx$$

$$8. \int \frac{3\sqrt{x} - 7x^5}{x^2} dx$$

$$9. \int \frac{(x+2)^2}{x} dx$$

$$10. \int \frac{(x-3)^2}{x^2} dx$$

$$11. \int \frac{3}{x} + \frac{5}{x^2} dx$$

$$12. \int 5 \sin x - 3 \cos x dx$$

$$13. \int 4e^x - 5 \cdot 2^x dx$$

$$14. \int 5 \cdot 2^{x+1} dx$$

$$15. \int 3 \cdot 5^{2x-1} dx$$

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

$$17. \int \frac{x^2}{x^2+1} dx$$

$$18. \int \frac{3x^2 - 2}{x^2 + 1} dx$$

Całki przez podstawienie:

$$19. \int \sin(3x+1) dx$$

$$20. \int \frac{1}{2x-5} dx$$

$$21. \int \frac{1}{(5x+1)^3} dx$$

$$22. \int \cos(4x-3) dx$$

$$23. \int x \sin(x^2+1) dx$$

$$24. \int x^2 \cos(x^3-2) dx$$

$$25. \int x^2 \sqrt{2x^3+1} dx$$

$$26. \int \sqrt{x^4+x^2} dx$$

$$27. \int \sin x \sin(\cos x) dx$$

$$28. \int \sin x \cos x dx$$

$$29. \int \sin^2 x \cos x dx$$

$$30. \int \sin x \cos^2 x dx$$

$$31. \int \operatorname{tg} x dx$$

$$32. \int \frac{\ln^3 x}{x} dx$$

$$33. \int \frac{\ln x^3}{x} dx$$

$$34. \int x e^{-x^2} dx$$

$$35. \int \frac{x}{x^2+1} dx$$

$$36. \int \frac{x}{x^4+1} dx$$

$$37. \int \frac{x^2}{x^3+1} dx$$

$$38. \int \frac{1}{x^2+2x+2} dx$$

$$39. \int \frac{1}{x^2+3} dx$$

$$40. \int \frac{1}{x^2+2x+3} dx$$

$$41. \int \frac{x}{x^2+1} dx$$

$$42. \int \frac{3x+2}{x^2+1} dx$$

Funkcje wymierne:

$$43. \int \frac{1}{x(x-2)} dx$$

$$44. \int \frac{1}{x^2-1} dx$$

$$45. \int \frac{1}{(x-1)(x-2)} dx$$

$$46. \int \frac{1}{x(x^2+1)} dx$$

$$47. \int \frac{x+1}{x(x-2)} dx$$

$$48. \int \frac{x}{x^2-1} dx$$

$$49. \int \frac{x}{(x-1)(x-2)} dx$$

$$50. \int \frac{x^2+1}{x(x-2)} dx$$

$$51. \int \frac{x^2}{x^2-1} dx$$

$$52. \int \frac{x^2}{(x-1)(x-2)} dx$$

$$53. \int \frac{x^2+1}{x(x^2+1)} dx$$

Całki przez części:

$$54. \int x \sin x dx$$

$$55. \int x e^x dx$$

$$56. \int x^2 \cos x dx$$

$$57. \int \ln x dx$$

$$58. \int x \ln x dx$$

$$59. \int \sin^2 x dx$$

$$60. \int \sin x \cos x dx$$

$$61. \int \sin x e^x dx$$

Całki różne:

$$62. \int \frac{\sin^3 x + \cos^3 x}{\sin^2 x \cos^2 x} dx$$

$$63. \int \frac{\ln x}{x^2} dx$$

$$64. \int \sin^3 x dx$$

$$65. \int \sin^4 x dx$$

$$66. \int x^3 e^{x^2} dx$$

$$67. \int x^5 \sin x^3 dx$$

$$68. \int x \sin^2 x dx$$