

Aşağıdaki integralleri hesaplayınız.

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

2. $\int \frac{dx}{\sqrt{x}}$

3. $\int \sqrt{ax} dx$

4. $\int \sqrt{x} (3x - 2) dx$

5. $\int x(2 + x^2)^2 dx$

6. $\int (\sqrt{a} - \sqrt{x})^2 dx$

7. $\int \frac{(\sqrt{a} - \sqrt{x})^2}{\sqrt{x}} dx$

8. $\int \frac{(2 + \ln x) dx}{x}$

9. $\int \sin 2x \cdot \cos^3 2x dx$

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

11. $\int \frac{(x + 4) dx}{2x + 3}$

12. $\int \frac{(x^3 + 3x) dx}{x^2 + 1}$

13. $\int a^x \cdot e^x dx$

14. $\int a^{nx} dx$

15. $\int \operatorname{tg}(ax) dx$

16. $\int \operatorname{sec} x dx$

17. $\int x \cdot \operatorname{sec}^2 x^2 dx$

18. $\int \frac{dx}{\sin^2 x}$

19. $\int (\operatorname{tg} x - 1)^2 dx$

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

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

22. $\int \frac{dx}{\sqrt{x^2 + 2x}}$

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

24. $\int \frac{(2x + 3) dx}{x^2 + 2x + 2}$

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

$$26. \int \frac{(x+3)dx}{\sqrt{x^2+1}}$$

$$27. \int \frac{\operatorname{tg}x dx}{\sqrt{\cos x}}$$

$$28. \int \frac{\sin x dx}{1+\cos^2 x}$$

$$29. \int \frac{\sin 2x dx}{1+\cos^2 x}$$

$$30. \int \operatorname{tg}^3 x dx$$

$$31. \int \operatorname{tg}^2 x dx$$

$$32. \int \operatorname{tg}^4 x dx$$

$$33. \int \ln x dx$$

$$34. \int \ln x^3 dx$$

$$35. \int \operatorname{arctg} \sqrt{x} dx$$

$$36. \int \frac{\ln x dx}{(x+1)^2}$$

$$37. \int \frac{\ln(x+1) dx}{\sqrt{x+1}}$$

$$38. \int e^x \cdot \cos x dx$$

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

$$40. \int (\ln x)^2 dx$$

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

$$42. \int \frac{1+\operatorname{tg} x}{1-\operatorname{tg} x} dx$$

$$43. \int \frac{\cos^3 x}{\sin x} dx$$

$$44. \int 2x \cdot (\ln x)^2 dx$$

$$45. \int \sqrt{1-\sin x} dx$$

$$46. \int \ln \sqrt{x-1} dx$$

$$47. \int \ln(x^2+x) dx$$

$$48. \int \sin \sqrt{x} dx$$

$$49. \int \ln(x^2+1) dx$$

$$50. \int x \cdot \operatorname{tg}^2 x dx$$

CEVAPLAR

1. $-\frac{1}{x} + C$

2. $2\sqrt{x} + C$

3. $\frac{2}{3}x \cdot \sqrt{ax} + C$

4. $\frac{6}{5}x^2\sqrt{x} - \frac{4}{3}x\sqrt{x} + C$

5. $\frac{1}{6}(2+x^2)^3 + C$

6. $ax - \frac{4}{3}x\sqrt{ax} + \frac{1}{2}x^2 + C$

7. $-\frac{2}{3}(\sqrt{a} - \sqrt{x})^3 + C$

8. $\frac{1}{2}(2 + \ln x)^2 + C$

9. $-\frac{1}{6}(\cos^2 2x) + C$

10. $\frac{1}{2}x^2 - x + 3\ln|x+1| + C$

11. $\frac{1}{2}x + \frac{5}{4}\ln|2x+3| + C$

12. $\frac{1}{2}x^2 + \ln(x^2 + 1) + C$

13. $\frac{a^x \cdot e^x}{1 + \ln a} + C$

14. $\frac{a^{nx}}{n \ln a} + C$

15. $\frac{1}{a} \ln|\sec(ax)| + C$

16. $\ln|\sec x + \operatorname{tg} x| + C$

17. $\frac{1}{2} \operatorname{tg}(x^2) + C$

18. $-\operatorname{cot} g x + C$

19. $\operatorname{tg} x - 2 \ln|\sec x| + C$

20. $\frac{1}{\sqrt{2}} \operatorname{arctg}\left(\frac{x+1}{\sqrt{2}}\right) + C$

21. $\frac{1}{4} \ln\left|\frac{x-1}{x+3}\right| + C$

22. $\ln|x+1+\sqrt{x^2+2x}| + C$

23. $\operatorname{arctg} x + \ln(1+x^2) + C$

24. $\ln|x^2+2x+2| + \operatorname{arctg}(x+1) + C$

25. $-\sqrt{1-x^2} - \operatorname{arcsin} x + C$

26. $\sqrt{x^2+1} + 3 \ln(x + \sqrt{x^2+1}) + C$

27. $\frac{2}{\sqrt{\cos x}} + C$

28. $-\operatorname{arctg}(\cos x) + C$

29. $-\ln(1 + \cos^2 x) + C$

30. $\frac{1}{2} \operatorname{tg}^2 x + \ln(\cos x) + C$

31. $\operatorname{tg} x - x + C$

32. $\frac{1}{3} \operatorname{tg}^3 x - \operatorname{tg} x + x + C$

33. $x \ln x - x + C$

34. $3x \ln x - 3x + C$

35. $(x+1) \cdot \operatorname{arctg} \sqrt{x} - \sqrt{x} + C$

36. $\frac{x}{x+1} \ln x - \ln|x+1| + C$

37. $2\sqrt{x+1} [\ln(x+1) - 2] + C$

38. $\frac{1}{2} e^x (\sin x + \cos x) + C$

39. $\frac{1}{4} \ln \left| \frac{2 + \sin x}{2 - \sin x} \right| + C$

40. $x(\ln x)^2 - 2x \ln x + 2x + C$

41. $\frac{2}{3} x \sqrt{x} - x + 2\sqrt{x} - 2 \ln(1 + \sqrt{x}) + C$

42. $-\ln|\cos x - \sin x| + C$

43. $\ln|\sin x| - \frac{1}{2} \sin^2 x + C$

44. $x^2 \cdot \ln^2 x - x^2 \cdot \ln x + \frac{1}{2} x^2 + C$

45. $2\sqrt{1 + \sin x} + C$

46. $\frac{1}{2} (x-1) \cdot \ln(x-1) - \frac{1}{2} x + C$

47. $x \ln x + (x+1) \ln(x+1) - 2x + C$

48. $2 \sin \sqrt{x} - 2\sqrt{x} \cdot \cos x + C$

49. $x \cdot \ln(x^2 + 1) + 2 \operatorname{arctg} x - 2x + C$

50. $x \cdot \operatorname{tg} x + \ln|\cos x| - \frac{1}{2} x^2 + C$