INTEGÁLSZÁMÍTÁS

1. $\int (\cos x + 6x^2 + 1)\,dx$ $\left[\sin x + 6 \cdot \frac{x^3}{3} + x + c = \sin x + 2x^3 + x + c\right]$

2. $\int \left(\frac{1}{\sin^2 x} - 4x^7 + \frac{1}{x}\right) dx$ $\left[-\mathrm{ctg}x - 4 \cdot \frac{x^8}{8} + \ln|x| + c = -\mathrm{ctg}x - \frac{1}{2}x^8 + \ln|x| + c\right]$

3. B $\int \left(\frac{2}{1+x^2} + 5^x + 3 - \frac{\sqrt{3}}{x^4}\right) dx$

$\left[2 \cdot \mathrm{arctg}x + \frac{5^x}{\ln 5} + 3x - \sqrt{3} \cdot \frac{x^{-3}}{-3} + c = 2\mathrm{arctg}x + \frac{5^x}{\ln 5} + 3x + \frac{\sqrt{3}}{3x^3} + c\right]$

4. B $\int \left(\frac{4}{\sqrt{1-x^2}} - 7\mathrm{e}^x + 3x^2 - \frac{4\sqrt{x}}{x^2}\right) dx$

$\left[4 \cdot \mathrm{arcsin}x - 7 \cdot \mathrm{e}^x + 3 \cdot \frac{x^3}{3} - 4 \cdot \frac{x^{-\frac{1}{2}}}{-\frac{1}{2}} + c = 4\mathrm{arcsin}x - 7\mathrm{e}^x + x^3 + \frac{8}{\sqrt{x}} + c\right]$

5. B $\int \frac{x^3 + \sqrt[4]{x} - x}{\sqrt[3]{x}}\,dx$

$[\frac{x^{\frac{11}{3}}}{\frac{11}{3}} + \frac{x^{\frac{11}{12}}}{\frac{11}{12}} - \frac{x^{\frac{5}{3}}}{\frac{5}{3}} + c = \frac{3}{11}\sqrt[3]{x^{11}} + \frac{12}{11}\sqrt[12]{x^{11}} - \frac{3}{5}\sqrt[3]{x^5} + c]$

6. B $\int \left(\frac{5}{\cos^2 x} - 8 + 3x^6 + \frac{3x}{x^8}\right) dx$

$\left[5 \cdot \mathrm{tg}x - 8x + 3\frac{x^7}{7} + 3 \cdot \frac{x^{-6}}{-6} + c = 5\mathrm{tg}x - 8x + \frac{3}{7}x^7 - \frac{3}{8x^3} + c\right]$

7. B,V $\int \sqrt[4]{4x-2}\,dx$ $\left[\frac{1}{4} \cdot \frac{(4x-2)^{\frac{5}{4}}}{\frac{5}{4}} + c = \frac{1}{5} \cdot (4x-2)^{\frac{5}{4}} + c\right]$

8. B,V $\int 5^{6-4x}\,dx$ $\left[-\frac{1}{4} \cdot \frac{5^{6-4x}}{\ln 5} + c\right]$

9. B,V $\int \sin x \cdot \cos^4 x\,dx$ $\left[-\frac{\cos^5 x}{5} + c\right]$

10. B,V $\int \frac{1}{\sqrt{1-(3x+2)^2}}\,dx$ $\left[\frac{1}{3} \cdot \arcsin(3x+2) + c\right]$

11. B,V $\int x^3 \cdot (3x^4+5)^8\,dx$ $\left[\frac{1}{12} \cdot \frac{(3x^4+5)^9}{9} + c = \frac{1}{108} \cdot (3x^4+5)^9 + c\right]$

12. B,V $\int \frac{\sin x}{\cos^4 x}, dx$ $\left[-\frac{(\cos x)^{-3}}{-3} + c = \frac{1}{3} \cdot \frac{1}{\cos^3 x} + c\right]$

13. B,V $\int x^3 \cdot \sqrt[4]{(x^4-7)^5}, dx$ $\left[\frac{1}{4} \cdot \frac{(x^4-7)^{\frac{9}{4}}}{\frac{9}{4}} + c = \frac{1}{9} \cdot (x^4-7)^{\frac{9}{4}} + c\right]$

14. B,V $\int \frac{\ln^3 x}{x}\, dx$ $\left[\frac{(\ln x)^4}{4} + c = \frac{1}{4} \cdot \ln^4 x + c\right]$

15. B,V $\int \frac{3}{\cos^2(3-4x)}\, dx$ $\left[3 \cdot \left(-\frac{1}{4}\right) \cdot \operatorname{tg}(3-4x) + c = -\frac{3}{4} \cdot \operatorname{tg}(3-4x) + c\right]$

16. B,V $\int \frac{5x^4}{\sin^2(1+2x^5)}\, dx$ $\left[5 \cdot \frac{1}{10} \cdot \left(-\operatorname{ctg}(1+2x^5)\right) + c = -\frac{1}{2} \cdot \operatorname{ctg}(1+2x^5) + c\right]$

17. B,V $\int x \cdot \sqrt[5]{2-7x^2}\, dx$ $\left[-\frac{1}{14} \cdot \frac{(2-7x^2)^{\frac{6}{5}}}{\frac{6}{5}} + c = -\frac{5}{84} \cdot (2-7x^4)^{\frac{6}{5}} + c\right]$

18. B,V $\int (\mathrm{e}^{4x}+4)^7 \cdot \mathrm{e}^{4x}\, dx$ $\left[\frac{1}{4} \cdot \frac{(\mathrm{e}^{4x}+4)^8}{8} + c = \frac{1}{32} \cdot (\mathrm{e}^{4x}+4)^8 + c\right]$

19. B,V $\int \frac{x^2}{\sin^2(2x^3+7)}\, dx$ $\left[\frac{1}{6} \cdot \left(-\operatorname{ctg}(2x^3+7)\right) + c\right]$

20. B,V $\int \frac{\sqrt[5]{\operatorname{arctg}^3 x}}{1+x^2}\, dx$ $\left[\frac{(\operatorname{arctg} x)^{\frac{8}{5}}}{\frac{8}{5}} + c = \frac{5}{8} \cdot (\operatorname{arctg} x)^{\frac{8}{5}} + c\right]$

21. B,V $\int \frac{1}{x \cdot \ln^4 x}\, dx$ $\left[\frac{(\ln x)^{-3}}{-3} + c = -\frac{1}{3} \cdot \frac{1}{\ln^3 x} + c\right]$

22. B,V $\int \frac{x^2}{\sqrt[7]{2x^3-2}}\, dx$ $\left[\frac{1}{6} \cdot \frac{(2x^3-2)^{\frac{6}{7}}}{\frac{6}{7}} + c = \frac{7}{36} \cdot (2x^3-2)^{\frac{6}{7}} + c\right]$

23. B,V $\int \frac{5x^3}{\sqrt[3]{(2x^4-4)^2}}\, dx$ $\left[5 \cdot \frac{1}{8} \cdot \frac{(2x^4-4)^{\frac{1}{3}}}{\frac{1}{3}} + c = \frac{15}{8} \cdot (2x^4-4)^{\frac{1}{3}} + c\right]$

24. B,V $\int 2\cos x \cdot \sin^7 x\, dx$ $\left[2 \cdot \frac{(\sin x)^8}{8} + c = \frac{1}{4} \cdot \sin^8 x + c\right]$

25. B,V $\int \frac{3x^3}{\sqrt[9]{-1-5x^4}}\, dx$ $\left[3 \cdot \left(-\frac{1}{20}\right) \cdot \frac{(-1-5x^4)^{\frac{8}{9}}}{\frac{8}{9}} + c = -\frac{27}{160} \cdot (-1-5x^4)^{\frac{8}{9}} + c\right]$

26. B,V $\int (4-6x^2)\mathrm{e}^{-x^3+2x}\, dx$ $[2 \cdot \mathrm{e}^{-x^3+2x} + c]$

$\left(\int (4-6x^2)\mathrm{e}^{-x^3+2x}\, dx = 2\int (2-3x^2)\mathrm{e}^{-x^3+2x}\, dx\right)$

27. B,V $\int \sqrt[3]{(3-2x)^2}\,dx$ $\left[-\frac{1}{2}\cdot\frac{(3-2x)^{\frac{5}{3}}}{\frac{5}{3}}+c=-\frac{1}{2}\cdot\frac{3}{5}\sqrt[3]{(3-2x)^5}+c\right]$
$\left(\int \sqrt[3]{(3-2x)^2}\,dx=\int(3-2x)^{\frac{2}{3}}\,dx=-\frac{1}{2}\int -2\cdot(3-2x)^{\frac{2}{3}}\,dx\right)$

28. B,V $\int \frac{5}{\sqrt{1-x^2}\arcsin(x)}\,dx$ $[5\cdot\ln|\arcsin(x)|+c]$
$\left(\int \frac{5}{\sqrt{1-x^2}\arcsin(x)}\,dx=5\int\frac{1}{\sqrt{1-x^2}}\cdot(\arcsin(\mathrm{x}))^{-1}\,dx\right)$

29. B,V $\int \frac{2}{3x\ln^5 x}\,dx$ $\left[\frac{2}{3}\cdot\frac{(\ln x)^{-4}}{-4}+c=-\frac{1}{6}\cdot\frac{1}{\ln^4 x}\right]$
$\left(\int \frac{2}{3x\ln^5 x}\,dx=\frac{2}{3}\int\frac{1}{x}\cdot(\ln x)^{-5}\,dx\right)$

30. B,V $\int \frac{3\arccos^4(x)}{\sqrt{1-x^2}}\,dx$ $\left[3\cdot(-1)\cdot\frac{(\arccos(x))^5}{5}+c=-\frac{3}{5}\cdot\arccos^5(x)+c\right]$

31. B,V $\int \mathrm{e}^{2+\sin x}\cdot\cos x\,dx$ $\left[\mathrm{e}^{2+\sin x}+c\right]$

32. B,V $\int \frac{4}{1+(3x-8)^2}\,dx$ $\left[4\cdot\frac{1}{3}\cdot\operatorname{arctg}(3x-8)+c=\frac{4}{3}\cdot\operatorname{arctg}(3x-8)+c\right]$

33. B,V $\int \frac{2}{\operatorname{arctg}^5 x\cdot(1+x^2)}\,dx$ $\left[2\cdot\frac{(\operatorname{arctg}x)^{-4}}{-4}+c=-\frac{1}{2}\cdot\frac{1}{\operatorname{arctg}^4 x}+c\right]$

34. B,V $\int \frac{2}{\arccos^3 x\cdot\sqrt{1-x^2}}\,dx$ $\left[2\cdot(-1)\cdot\frac{(\arccos x)^{-2}}{-2}+c=\frac{1}{\arccos^2 x}+c\right]$

35. B,V $\int \frac{\mathrm{e}^{3x}}{\mathrm{e}^{3x}-5}\,dx$ $\left[\frac{1}{3}\cdot\ln|\mathrm{e}^{3x}-5|+c\right]$

36. B,V $\int \frac{x}{3x^2+2}\,dx$ $\left[\frac{1}{6}\cdot\ln|3x^2+2|+c=\frac{1}{6}\cdot\ln(3x^2+2)+c\right]$

37. B,V $\int \frac{3\sin x}{2+7\cos x}\,dx$ $\left[3\cdot\left(-\frac{1}{7}\right)\cdot\ln|2+7\cos x|+c=-\frac{3}{7}\cdot\ln|2+7\cos x|+c\right]$

38. B,V $\int \frac{8\sin(5x)}{2+3\cos(5x)}\,dx$ $\left[8\cdot\left(-\frac{1}{15}\right)\cdot\ln|2+3\cos(5x)|+c=-\frac{8}{15}\cdot\ln|2+3\cos(5x)|+c\right]$

39. B,V $\int \frac{2\mathrm{e}^{-x}}{3+5\mathrm{e}^{-x}}\,dx$ $\left[2\cdot\left(-\frac{1}{5}\right)\cdot\ln|3+5\mathrm{e}^{-x}|+c=-\frac{2}{5}\cdot\ln|3+5\mathrm{e}^{-x}|+c\right]$

40. V $\displaystyle\int \frac{\sqrt{\arcsin^5(x)}}{\sqrt{4-4x^2}}\,dx$ $\left[\frac{1}{2}\cdot\frac{(\arcsin(x))^{\frac{7}{2}}}{\frac{7}{2}}+c=\frac{1}{2}\cdot\frac{2}{7}\cdot(\arcsin(x))^{\frac{7}{2}}+c\right]$

$$\left(\int \frac{\sqrt{\arcsin^5(x)}}{\sqrt{4-4x^2}}\,dx=\int \frac{1}{\sqrt{4-4x^2}}\cdot(\arcsin(\mathrm{x}))^{\frac{5}{2}}\,dx=\frac{1}{2}\int \frac{1}{\sqrt{1-x^2}}\cdot(\arcsin(\mathrm{x}))^{\frac{5}{2}}\,dx\right)$$

41. V $\displaystyle\int (4x+3)\mathrm{e}^{2x}\,dx$ $\left[(4x+3)\cdot\frac{1}{2}\cdot\mathrm{e}^{2x}-\mathrm{e}^{2x}+c\right]$

42. V $\displaystyle\int (x^2-2x+1)\ln x\,dx$ $\left[\left(\frac{1}{3}x^3-x^2+x\right)\cdot\ln x-\frac{1}{9}x^3+\frac{1}{2}x^2-x+c\right]$

43. V $\displaystyle\int \mathrm{arctg}(x)\,dx$ $\left[x\cdot\mathrm{arctg}(x)-\frac{1}{2}\cdot\ln|1+x^2|+c\right]$

44. V $\displaystyle\int (4x+6)\cos(2x+7)\,dx$ $\left[(4x+6)\cdot\frac{1}{2}\cdot\sin(2x+7)+\cos(2x+7)+c\right]$

45. V $\displaystyle\int \ln(5x)\,dx$ $[x\cdot\ln(5x)-x+c]$

46. V $\displaystyle\int (3-5x)\mathrm{e}^{4x-1}\,dx$ $\left[(3-5x)\cdot\frac{1}{4}\cdot\mathrm{e}^{4x-1}+\frac{5}{16}\cdot\mathrm{e}^{4x-1}+c\right]$

47. V $\displaystyle\int (-2x-1)\ln(6x)\,dx$ $\left[(-x^2-x)\cdot\ln(6x)+\frac{1}{2}x^2+x+c\right]$

48. V $\displaystyle\int 5\log_3 x\,dx$ $\left[5x\cdot\log_3 x-\frac{5}{\ln 3}x+c\right]$

49. V $\displaystyle\int \frac{2}{x^2}\ln(7x)\,dx$ $\left[-\frac{2}{x}\ln(7x)-\frac{2}{x}+c\right]$

50. V $\displaystyle\int \ln^2 x\,dx$ $\left[x\ln^2 x-2x\ln x+2x+c\right]$

51. V $\displaystyle\int (x^2+1)\sin x\,dx$ $\left[-(x^2+1)\cdot\cos x+2x\cdot\sin x+2\cos x+c\right]$

52. V $\displaystyle\int (x+2)^2\cos\left(\frac{x}{2}\right)\,dx$ $\left[2(x^2+4x+4)\sin\left(\frac{x}{2}\right)+4(2x+4)\cos\left(\frac{x}{2}\right)-16\sin\left(\frac{x}{2}\right)+c\right]$

53. V $\displaystyle\int (3x^2+x)\sin(4x)\,dx$ $\left[-\frac{1}{4}(3x^2+x)\cos(4x)+\frac{1}{16}(6x+1)\sin(4x)+\frac{3}{32}\cos(4x)+c\right]$