

## INTEGRÁLÁSI SZABÁLYOK

$$1. \text{ B } \int \frac{\operatorname{ctg}^4 x}{\sin^2 x} dx \quad \left[ -\frac{\operatorname{ctg}^5 x}{5} + c \right]$$

$$2. \text{ B } \int 10 \sin^4 x \cdot \cos x dx \quad \left[ 2 \sin^5 x + c \right]$$

$$3. \text{ B } \int -x^5 e^{x^6} dx \quad \left[ -\frac{e^{x^6}}{6} + c \right]$$

$$4. \text{ B } \int x^2 \sqrt{x^3 + 2} dx \quad \left[ \frac{2}{9} \sqrt{(x^3 + 2)^3} + c \right]$$

$$5. \text{ B } \int (x^6 - 1)(x^7 - 7x)^8 dx \quad \left[ \frac{1}{7} \cdot \frac{(x^7 - 7x)^9}{9} + c = \frac{1}{63} (x^7 - 7x)^9 + c \right]$$

$$6. \text{ B } \int 3(e^{2x} + 1)(e^{2x} + 2x)^5 dx \quad \left[ \frac{(e^{2x} + 2x)^6}{4} + c \right]$$

$$7. \text{ B, V } \int x^3 \cdot (3x^4 + 5)^8 dx \quad \left[ \frac{1}{12} \cdot \frac{(3x^4 + 5)^9}{9} + c = \frac{1}{108} \cdot (3x^4 + 5)^9 + c \right]$$

$$8. \text{ B, V } \int \sin x \cdot \cos^4 x dx \quad \left[ -\frac{\cos^5 x}{5} + c \right]$$

$$9. \text{ B, V } \int \frac{\sin x}{\cos^4 x} dx \quad \left[ -\frac{(\cos x)^{-3}}{-3} + c = \frac{1}{3} \cdot \frac{1}{\cos^3 x} + c \right]$$

$$10. \text{ B, V } \int x^3 \cdot \sqrt[4]{(x^4 - 7)^5} dx \quad \left[ \frac{1}{4} \cdot \frac{(x^4 - 7)^{\frac{9}{4}}}{\frac{9}{4}} + c = \frac{1}{9} \cdot (x^4 - 7)^{\frac{9}{4}} + c \right]$$

$$11. \text{ B, V } \int \frac{\ln^3 x}{x} dx \quad \left[ \frac{(\ln x)^4}{4} + c = \frac{1}{4} \cdot \ln^4 x + c \right]$$

$$12. \text{ B, V } \int \frac{5x^4}{\sin^2(1 + 2x^5)} dx \quad \left[ 5 \cdot \frac{1}{10} \cdot (-\operatorname{ctg}(1 + 2x^5)) + c = -\frac{1}{2} \cdot \operatorname{ctg}(1 + 2x^5) + c \right]$$

$$13. \text{ B, V } \int x \cdot \sqrt[5]{2 - 7x^2} dx \quad \left[ -\frac{1}{14} \cdot \frac{(2 - 7x^2)^{\frac{6}{5}}}{\frac{6}{5}} + c = -\frac{5}{84} \cdot (2 - 7x^2)^{\frac{6}{5}} + c \right]$$

$$14. \text{ B, V } \int (e^{4x} + 4)^7 \cdot e^{4x} dx \quad \left[ \frac{1}{4} \cdot \frac{(e^{4x} + 4)^8}{8} + c = \frac{1}{32} \cdot (e^{4x} + 4)^8 + c \right]$$

$$15. \text{ B, V } \int \frac{x^2}{\sin^2(2x^3 + 7)} dx \quad \left[ \frac{1}{6} \cdot (-\text{ctg}(2x^3 + 7)) + c \right]$$

$$16. \text{ B, V } \int \frac{7x}{(1+x^2)^5} dx \quad \left[ \frac{7}{2} \cdot \frac{(1+x^2)^{-4}}{-4} + c = -\frac{7}{8} \cdot \frac{1}{(1+x^2)^4} + c \right]$$

$$17. \text{ B, V } \int \frac{1}{x \cdot \ln^4 x} dx \quad \left[ \frac{(\ln x)^{-3}}{-3} + c = -\frac{1}{3} \cdot \frac{1}{\ln^3 x} + c \right]$$

$$18. \text{ B, V } \int \frac{x^2}{\sqrt[7]{2x^3 - 2}} dx \quad \left[ \frac{1}{6} \cdot \frac{(2x^3 - 2)^{\frac{6}{7}}}{\frac{6}{7}} + c = \frac{7}{36} \cdot \sqrt[7]{(2x^3 - 2)^6} + c \right]$$

$$19. \text{ B, V } \int \frac{5x^3}{\sqrt[3]{(2x^4 - 4)^2}} dx \quad \left[ 5 \cdot \frac{1}{8} \cdot \frac{(2x^4 - 4)^{\frac{1}{3}}}{\frac{1}{3}} + c = \frac{15}{8} \cdot \sqrt[3]{2x^4 - 4} + c \right]$$

$$20. \text{ B, V } \int 2 \cos x \cdot \sin^7 x dx \quad \left[ 2 \cdot \frac{(\sin x)^8}{8} + c = \frac{1}{4} \cdot \sin^8 x + c \right]$$

$$21. \text{ B, V } \int \frac{3x^3}{\sqrt[9]{-1 - 5x^4}} dx \quad \left[ 3 \cdot \left(-\frac{1}{20}\right) \cdot \frac{(-1 - 5x^4)^{\frac{8}{9}}}{\frac{8}{9}} + c = -\frac{27}{160} \cdot (-1 - 5x^4)^{\frac{8}{9}} + c \right]$$

$$22. \text{ B, V } \int (4 - 6x^2)e^{-x^3+2x} dx \quad [2 \cdot e^{-x^3+2x} + c]$$

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

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

$$\left( \int \sqrt[3]{(3-2x)^2} dx = \int (3-2x)^{\frac{2}{3}} dx = -\frac{1}{2} \int -2 \cdot (3-2x)^{\frac{2}{3}} dx \right)$$

$$24. \text{ B, V } \int \frac{2}{3x \ln^5 x} dx \quad \left[ \frac{2}{3} \cdot \frac{(\ln x)^{-4}}{-4} + c = -\frac{1}{6} \cdot \frac{1}{\ln^4 x} \right]$$

$$\left( \int \frac{2}{3x \ln^5 x} dx = \frac{2}{3} \int \frac{1}{x} \cdot (\ln x)^{-5} dx \right)$$

$$25. \text{ B, V } \int e^{2+\sin x} \cdot \cos x dx \quad [e^{2+\sin x} + c]$$

### PARCIÁLIS INTEGRÁLÁS

$$26. \text{ B } \int (3x - 4) \sin x dx \quad 3 \sin x - (3x - 4) \cos x + c$$

$$27. \text{ B } \int (2x + 7) \cdot 3^x dx \quad \left[ \frac{3^x}{\ln 3} \left( 2x + 7 - \frac{2}{\ln 3} \right) + c \right]$$

$$28. \text{ B } \int (5x + 8) \cdot \cos x dx \quad [(5x + 8) \sin x + 5 \cos x + c]$$

29. **B**  $\int (8x - 9) \cdot \ln x \, dx$   $\left[ (4x^2 - 9x) \cdot \ln x - (2x^2 - 9x) + c \right]$
30. **B**  $\int \ln(5x) \, dx$   $[x \cdot \ln(5x) - x + c]$
31. **B, V**  $\int (5x + 1) \cdot e^{-0,2x} \, dx$   $[-25xe^{-0,2x} - 130e^{-0,2x} + c]$
32. **B, V**  $\int 6x \cdot \ln(-x) \, dx$   $\left[ 3x^2 \cdot \ln(-x) - \frac{3}{2} \cdot x^2 + c \right]$
33. **B, V**  $\int 2x \cdot \sin(4x) \, dx$   $\left[ -\frac{1}{2}x \cos(4x) + \frac{1}{8} \sin(4x) + c \right]$
34. **B, V**  $\int (1 - 3x) \cdot \cos(3x) \, dx$   $\left[ \frac{1}{3}(1 - 3x) \sin(3x) - \frac{1}{3} \cos(3x) + c \right]$
35. **B, V**  $\int (4x + 3)e^{2x} \, dx$   $\left[ (4x + 3) \cdot \frac{1}{2} \cdot e^{2x} - e^{2x} + c \right]$
36. **B, V**  $\int (-2x - 1) \ln(6x) \, dx$   $\left[ (-x^2 - x) \cdot \ln(6x) + \frac{1}{2}x^2 + x + c \right]$
37. **V**  $\int (x^2 - 2x + 1) \ln(3x) \, dx$   $\left[ \left( \frac{1}{3}x^3 - x^2 + x \right) \cdot \ln(3x) - \frac{1}{9}x^3 + \frac{1}{2}x^2 - x + c \right]$
38. **V**  $\int (4x + 6) \cos(2x + 7) \, dx$   $\left[ (4x + 6) \cdot \frac{1}{2} \cdot \sin(2x + 7) + \cos(2x + 7) + c \right]$
39. **V**  $\int (3 - 5x)e^{4x-1} \, dx$   $\left[ (3 - 5x) \cdot \frac{1}{4} \cdot e^{4x-1} + \frac{5}{16} \cdot e^{4x-1} + c \right]$
40. **V**  $\int \frac{2}{x^2} \ln(7x) \, dx$   $\left[ -\frac{2}{x} \ln(7x) - \frac{2}{x} + c \right]$
41. **V**  $\int (3x^2 + x) \cos(4x) \, dx$   $\left[ \frac{1}{4}(3x^2 + x) \sin(4x) + \frac{1}{16}(6x + 1) \cos(4x) - \frac{3}{32} \sin(4x) + c \right]$
42. **V**  $\int (x^2 + 5x - 4) \sin(2x) \, dx$   $\left[ -\frac{1}{2}(x^2 + 5x - 4) \cos(2x) + \frac{1}{4}(2x + 5) \sin(2x) + \frac{1}{4} \cos(2x) + c \right]$
43. **V**  $\int (x + 2)^2 \cos\left(\frac{x}{2}\right) \, dx$   $\left[ 2(x^2 + 4x + 4) \sin\left(\frac{x}{2}\right) + 4(2x + 4) \cos\left(\frac{x}{2}\right) - 16 \sin\left(\frac{x}{2}\right) + c \right]$
44. **V**  $\int (2x^2 + 3x - 1)e^{6x+5} \, dx$   $\left[ \frac{1}{6}(2x^2 + 3x - 1)e^{6x+5} - \frac{1}{36}(4x + 3)e^{6x+5} + \frac{4}{216}e^{6x+5} + c \right]$
45. **V**  $\int \ln^2(5x) \, dx$   $[x \ln^2(5x) - 2x \ln(5x) + 2x + c]$
46. **V**  $\int 3x \ln^2(2x) \, dx$   $\left[ \frac{3}{2}x^2 \ln^2(2x) - \frac{3}{2}x^2 \ln(2x) + \frac{3}{4}x^2 + c \right]$