INTEGRÁLSZÁMÍTÁS

ISMÉTLÉS

1. $\int \operatorname{ch}(6x-2)\,dx$ $\left[\frac{1}{6}\cdot\operatorname{sh}(6x-2)+c\right]$

2. $\int 3\mathrm{e}^{(8x-5)}\,dx$ $\left[\frac{3}{8}\cdot\mathrm{e}^{(8x-5)}+c\right]$

3. $\int \frac{1}{\operatorname{ch}^2(9x+7)}\,dx$ $\left[\frac{1}{9}\cdot\operatorname{th}(9x+7)+c\right]$

4. $\int 5x^2\cdot(2x^3+4)^6\,dx$ $\left[5\cdot\frac{1}{6}\cdot\frac{(2x^3+4)^7}{7}+c=\frac{5}{42}\cdot(2x^3+4)^7+c\right]$

5. $\int \frac{7}{\sqrt[8]{11x+3}}\,dx$ $\left[7\cdot\frac{1}{11}\cdot\frac{(11x+3)^{\frac{7}{8}}}{\frac{7}{8}}+c=\frac{8}{11}\cdot\sqrt[8]{(11x+3)^7}+c\right]$

6. $\int \frac{-3}{\sin^2(4x+2)}\,dx$ $\left[-3\cdot\frac{1}{4}\cdot(-\operatorname{ctg}(4x+2))+c=\frac{3}{4}\cdot\operatorname{ctg}(4x+2)+c\right]$

7. $\int \cos^5 x\cdot\sin x\,dx$ $\left[-\frac{(\cos x)^6}{6}+c=-\frac{1}{6}\cdot\cos^6 x+c\right]$

8. $\int 7x^5\cdot\sqrt[3]{(2x^6+9)^4}\,dx$ $\left[7\cdot\frac{1}{12}\cdot\frac{(2x^6+9)^{\frac{7}{3}}}{\frac{7}{3}}+c=\frac{1}{4}\cdot\sqrt[3]{(2x^6+9)^7}+c\right]$

9. $\int \frac{11x^3}{5x^4+17}\,dx$ $\left[11\cdot\frac{1}{20}\cdot\ln|5x^4+17|+c=\frac{11}{20}\cdot\ln(5x^4+17)+c\right]$

10. $\int \frac{\operatorname{ch}(8x)}{3+2\operatorname{sh}(8x)}\,dx$ $\left[\frac{1}{16}\cdot\ln|3+2\operatorname{sh}(8x)|+c\right]$

11. $\int \operatorname{sh}(\mathrm{e}^{4x}+5)\cdot\mathrm{e}^{4x}\,dx$ $\left[\frac{1}{4}\cdot\operatorname{ch}(\mathrm{e}^{4x}+5)+c\right]$

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

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

14. $\int \frac{8}{x\cdot\ln^5 x}\,dx$ $\left[8\cdot\frac{(\ln x)^{-4}}{-4}+c=-2\cdot\frac{1}{\ln^4 x}+c\right]$

15. $\int \frac{5}{9x^2+1}\,dx$ $\left[5\cdot\frac{1}{3}\cdot\operatorname{atctg}(3x)+c=\frac{5}{3}\cdot\operatorname{atctg}(3x)+c\right]$

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

17. $\int \frac{-2}{16x^2+25}\,dx$ $\left[-2\cdot\frac{1}{25}\cdot\frac{5}{4}\cdot \operatorname{arctg}\left(\frac{4}{5}x\right)+c=-\frac{1}{10}\cdot \operatorname{arctg}\left(\frac{4}{5}x\right)+c\right]$

18. $\int \frac{7}{5x^2+3}\,dx$ $\left[7\cdot\frac{1}{3}\cdot\sqrt{\frac{3}{5}}\cdot \operatorname{arctg}\left(\sqrt{\frac{5}{3}}x\right)+c=\frac{7\sqrt{15}}{15}\cdot \operatorname{arctg}\left(\frac{\sqrt{15}}{3}x\right)+c\right]$

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

20. $\int \frac{3}{x^2-6x+34}\,dx$ $\left[3\cdot\frac{1}{25}\cdot 5\cdot \operatorname{arctg}\left(\frac{1}{5}x-\frac{3}{5}\right)+c=\frac{3}{5}\cdot \operatorname{arctg}\left(\frac{1}{5}x-\frac{3}{5}\right)+c\right]$

21. $\int \frac{1}{\sqrt{4-x^2}}\,dx$ $\left[\arcsin\left(\frac{1}{2}x\right)+c\right]$

22. $\int \frac{1}{\sqrt{2x-x^2}}\,dx$ $[\arcsin(x-1)+c]$

23. $\int \frac{8}{\sqrt{6x-9x^2}}\,dx$ $\left[8\cdot\frac{1}{3}\cdot\arcsin(3x-1)+c=\frac{8}{3}\cdot\arcsin(3x-1)+c\right]$

24. $\int \frac{5}{\sqrt{-4x^2-12x-8}}\,dx$ $\left[5\cdot\frac{1}{2}\cdot\arcsin(2x+3)+c=\frac{5}{2}\cdot\arcsin(2x+3)+c\right]$

25. $\int \frac{11}{\sqrt{12x-9x^2-3}}\,dx$ $\left[11\cdot\frac{1}{3}\cdot\arcsin(3x-2)+c=\frac{11}{3}\cdot\arcsin(3x-2)+c\right]$

26. $\int (3x+2)\cdot \operatorname{sh}(4x)\,dx$ $\left[\frac{1}{4}\cdot \operatorname{ch}(4x)\cdot(3x+2)-\frac{3}{16}\cdot \operatorname{sh}(4x)+c\right]$

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

28. $\int (8x^2+10)\cdot\ln(5x)\,dx$ $\left[\left(\frac{8}{3}x^3+10x\right)\cdot\ln(5x)-\frac{8}{9}x^3-10x+c\right]$

29. $\int \operatorname{arctg}(3x)\,dx$ $\left[x\cdot\operatorname{arctg}(3x)-\frac{1}{6}\ln|1+9x^2|+c=x\cdot\operatorname{arctg}(3x)-\frac{1}{6}\ln(1+9x^2)+c\right]$

RACIONÁLIS TÖRTFÜGGVÉNYEK INTEGRÁLÁSA

30. B $\int \frac{8}{3x-7}\,dx$ $\left[\frac{8}{3}\cdot\ln|3x-7|+c\right]$

31. B $\int \frac{2}{5-9x}\,dx$ $\left[-\frac{2}{9}\cdot\ln|5-9x|+c\right]$

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

33. B $\int \frac{13}{(2-11x)^7}\,dx$ $\left[\frac{13}{66}\cdot\frac{1}{(2-11x)^6}+c\right]$

34. B $\int \frac{x}{(3x+2)^4}\,dx$ $\left[-\frac{1}{18}\cdot\frac{1}{(3x+2)^2}+\frac{2}{27}\cdot\frac{1}{(3x+2)^3}+c\right]$

35. B $\int \frac{7x}{(3x-4)^6}\,dx$ $\left[-\frac{7}{36}\cdot\frac{1}{(3x-4)^4}-\frac{28}{45}\cdot\frac{1}{(3x-4)^5}+c\right]$

36. B $\int \frac{6x}{(5x-2)^2}\,dx$ $\left[-\frac{12}{25}\cdot\frac{1}{(5x-2)}+\frac{6}{25}\cdot\ln|5x-2|+c\right]$

37. B $\int \frac{3x+1}{(2x-3)^5}\,dx$ $\left[-\frac{11}{16}\cdot\frac{1}{(2x-3)^4}-\frac{1}{4}\cdot\frac{1}{(2x-3)^3}+c\right]$

38. B $\int \frac{2}{x^2+4x+5}\,dx$ $[2\cdot\operatorname{arctg}(x+2)+c]$

39. B $\int \frac{17}{x^2+6x+20}\,dx$
$\left[\frac{17\sqrt{11}}{11}\cdot\operatorname{arctg}\left(\frac{1}{\sqrt{11}}x+\frac{3}{\sqrt{11}}\right)+c=\frac{17}{\sqrt{11}}\cdot\operatorname{arctg}\left(\frac{1}{\sqrt{11}}x+\frac{3}{\sqrt{11}}\right)+c\right]$

40. B $\int \frac{x}{x^2+64}\,dx$ $\left[\frac{1}{2}\cdot\ln|x^2+64|+c=\frac{1}{2}\cdot\ln(x^2+64)+c\right]$

41. B $\int \frac{7x}{x^2+15}\,dx$ $\left[\frac{7}{2}\cdot\ln|x^2+15|+c=\frac{7}{2}\cdot\ln(x^2+15)+c\right]$

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

43. B $\int \frac{5x}{x^2-8x+25}\,dx$
$\left[\frac{5}{2}\cdot\ln|x^2-8x+25|+\frac{20}{3}\cdot\operatorname{arctg}\left(\frac{1}{3}x-\frac{4}{3}\right)+c=\frac{5}{2}\cdot\ln(x^2-8x+25)+\frac{20}{3}\cdot\operatorname{arctg}\left(\frac{1}{3}x-\frac{4}{3}\right)+c\right]$

44. B $\int \frac{7x+1}{x^2+16}\,dx$
$\left[\frac{7}{2}\cdot\ln|x^2+16|+\frac{1}{4}\cdot\operatorname{arctg}\left(\frac{1}{4}x\right)+c=\frac{7}{2}\cdot\ln(x^2+16)+\frac{1}{4}\cdot\operatorname{arctg}\left(\frac{1}{4}x\right)+c\right]$

45. B $\int \frac{3x+5}{x^2+6x+13}\,dx$
$\left[\frac{3}{2}\cdot\ln|x^2+6x+13|-2\cdot\operatorname{arctg}\left(\frac{1}{2}x+\frac{3}{2}\right)+c=\frac{3}{2}\cdot\ln(x^2+6x+13)-2\cdot\operatorname{arctg}\left(\frac{1}{2}x+\frac{3}{2}\right)+c\right]$

46. B $\int \left(\frac{2}{(x+5)^3}+\frac{3}{4x+1}\right)dx$ $\left[\frac{1}{(x+5)^2}+\frac{3}{4}\cdot\ln|4x+1|+c\right]$

47. B $\int \left(\frac{8}{(2x+3)^4}-\frac{6}{5x-2}\right)dx$ $\left[-\frac{4}{3}\cdot\frac{1}{(2x+3)^3}-\frac{6}{5}\cdot\ln|5x-2|+c\right]$

48. Milen típusú racionális törtek összegére bontaná az alábbi törteket?

(a) B $f(x)=\frac{3}{x^2+4x}$ $\left[\frac{A}{x}+\frac{B}{x+4}\right]$

(b) B $f(x)=\frac{x+1}{9x^3+7x^2}$ $\left[\frac{A}{x}+\frac{B}{x^2}+\frac{C}{9x+7}\right]$

(c) B $f(x)=\frac{8x-x^2+3}{x^4-x^3}$ $\left[\frac{A}{x}+\frac{B}{x^2}+\frac{C}{x^3}+\frac{D}{x-1}\right]$

(d) B $f(x)=\frac{5x-6}{x(8x^2+5)}$ $\left[\frac{A}{x}+\frac{Bx+c}{8x^2+5}\right]$

(e) B $f(x)=\frac{2}{x(x^2+x-6)}$ $\left[\frac{A}{x}+\frac{B}{x-2}+\frac{C}{x+3}\right]$

(f) B $f(x)=\frac{6x}{x(x^2+8x+16)}$ $\left[\frac{A}{x}+\frac{B}{x+4}+\frac{C}{(x+4)^2}\right]$

(g) B $f(x)=\frac{x^2}{4x^3+12x^2+9x}$ $\left[\frac{A}{x}+\frac{B}{2x+3}+\frac{C}{(2x+3)^2}\right]$

(h) B $f(x)=\frac{2x^2-7x}{(x+8)(5x^2+3)^3}$ $\left[\frac{A}{x+8}+\frac{Bx+C}{5x^2+3}+\frac{Dx+E}{(5x^2+3)^2}+\frac{Fx+G}{(5x^2+3)^3}\right]$

(i) B $f(x)=\frac{3x^3-2x^2+1}{x(x-1)^2(x^2+1)}$ $\left[\frac{A}{x}+\frac{B}{x-1}+\frac{C}{(x-1)^2}+\frac{Dx+E}{(x^2+1)}\right]$

(j) B $f(x)=\frac{8x^2+7x^4-9x}{(x+5)^3(2x^2+9)^2(11x-6)}$
$\left[\frac{A}{x+5}+\frac{B}{(x+5)^2}+\frac{C}{(x+5)^3}+\frac{Dx+E}{2x^2+9}+\frac{Fx+G}{(2x^2+9)^2}+\frac{H}{11x-6}\right]$

49. B $\int \frac{2}{x^2+2x-3}\,dx$ $\left[\frac{1}{2}\cdot\ln|x-1|-\frac{1}{2}\cdot\ln|x+3|+c\right]$

50. B $\int \frac{3x-5}{5x^2+14x-3}\,dx$
$\left[5x^2+14x-3=5(x-\frac{1}{5})(x+3)=(5x-1)(x+3);-\frac{11}{40}\cdot\ln|5x-1|+\frac{7}{8}\cdot\ln|x+3|+c\right]$

51. B $\int \frac{5x+3}{(x-1)(x^2-6x+9)}\,dx$ $\left[2\cdot\ln|x-1|-2\cdot\ln|x-3|-9\cdot\frac{1}{x-3}+c\right]$

52. B $\int \frac{5x-48}{x^3+16x}\,dx$ $\left[-3\cdot\ln|x|+\frac{3}{2}\cdot\ln(x^2+16)+\frac{5}{4}\cdot\operatorname{arctg}\left(\frac{1}{4}x\right)+c\right]$

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

54. B $\int \frac{2x^2+11x+16}{x^3+4x^2+8x}\,dx$ $\left[2\cdot\ln|x|+\frac{3}{2}\operatorname{arctg}\left(\frac{1}{2}x+1\right)+c\right]$

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

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

57. $\int \frac{3x^2+7}{(x^2+9)(x-8)}\,dx$ $\left[\frac{199}{73}\cdot\ln|x-8|+\frac{10}{73}\cdot\ln(x^2+9)+\frac{160}{219}\cdot\operatorname{arctg}\left(\frac{1}{3}x\right)+c\right]$

58. $\int \frac{x^4+3x^3+2x^2+1}{x^5+x^3}\,dx$ $\left[-\frac{1}{2}\cdot\frac{1}{x^2}+\ln|x|+3\cdot\operatorname{arctg}x+c\right]$

59. $\int \frac{27x^3+29x^2+13x+1}{x(3x+1)^3}\,dx$ $\left[\ln|x|-\frac{2}{9}\cdot\frac{1}{3x+1}-\frac{5}{9}\cdot\frac{1}{(3x+1)^2}+c\right]$

60. $\int \frac{5x^3+11x^2+63}{2x^4+9x^2}\,dx$ $\left[\frac{5}{4}\cdot\ln(2x^2+9)-\frac{\sqrt{2}}{2}\cdot\operatorname{arctg}\left(\frac{\sqrt{2}}{3}x\right)-7\cdot\frac{1}{x}+c\right]$

61. $\int \frac{2x^3+x^2+18x-9}{x^4-81}\,dx$ $\left[\ln|x-3|+\ln|x+3|+\frac{1}{3}\cdot\operatorname{arctg}\left(\frac{1}{3}x\right)+c\right]$

62. $\int \frac{6x^3+9x^2+72x+85}{(x^2+25)(x^2+2x-15)}\,dx$
$\left[\ln(x^2+25)+\frac{1}{5}\cdot\operatorname{arctg}\left(\frac{1}{5}x\right)+2\cdot\ln|x-3|+2\cdot\ln|x+5|+c\right]$

63. B $\int \frac{2x}{x+1}\,dx$ $[2x-2\ln|x+1|+c]$

64. B $\int \frac{5x}{3x-4}\,dx$ $\left[\frac{5}{3}x+\frac{20}{9}\cdot\ln|3x-4|+c\right]$

65. B $\int \frac{x^2}{x+2}\,dx$ $\left[\frac{1}{2}x^2-2x+4\cdot\ln|x+2|+c\right]$

66. B $\int \frac{8x^2}{4x-5}\,dx$ $\left[x^2+\frac{5}{2}x+\frac{25}{8}\cdot\ln|4x-5|+c\right]$

67. $\int \frac{x^3+x^2+x+2}{3x^2+x-2}\,dx$
$\left[3x^2+x-2=3(x+1)(x-\frac{2}{3})=(x+1)(3x-2);\frac{1}{6}x^2+\frac{2}{9}x+\frac{92}{135}\cdot\ln|3x-2|-\frac{1}{5}\cdot\ln|x+1|+c\right]$

68. $\int \frac{5x^5+2x^4-4x^3+3x^2-3x+3}{x^4+x^2}\,dx$
$\left[\frac{5}{2}x^2+2x-3\cdot\ln|x|-3\cdot\frac{1}{x}-3\cdot\ln(x^2+1)-2\cdot\operatorname{arctg}x+c\right]$

69. $\int \frac{2x^4+15x^3+33x^2+22x-6}{x^2+6x+8}\,dx$ $\left[\frac{2}{3}x^3+\frac{3}{2}x^2-x-3\cdot\ln|x+2|+7\cdot\ln|x+4|+c\right]$

INTEGRÁLÁS HELYETTESÍTÉSSEL

70. B $\int \mathrm{e}^x\cdot\sin(\mathrm{e}^x)\,dx$ $[-\cos(\mathrm{e}^x)+c;t=\mathrm{e}^x]$

71. B $\int \frac{1}{\sqrt[3]{x^2}}\cdot\cos(\sqrt[3]{x})\,dx$ $[3\cdot\sin(\sqrt[3]{x})+c;t=\sqrt[3]{x}]$

72. B $\int \frac{1}{\sqrt[3]{x^2}+x\sqrt[3]{x}}\,dx$ $[3\cdot\operatorname{arctg}(\sqrt[3]{x})+c;t=\sqrt[3]{x}]$

73. B $\int \frac{\mathrm{e}^x}{\cos^2(\mathrm{e}^x)}\,dx$ $[\operatorname{tg}(\mathrm{e}^x)+c;t=\mathrm{e}^x]$

74. B $\int \mathrm{e}^{\sqrt{x}}\,dx$ $\left[2\cdot\sqrt{x}\cdot\mathrm{e}^{\sqrt{x}}-2\cdot\mathrm{e}^{\sqrt{x}}+c;t=\sqrt{x}\right]$

75. $\int \frac{2}{4+\sqrt{x}}\,dx$ $[4\cdot\sqrt{x}-16\cdot\ln|4+\sqrt{x}|+c;t=\sqrt{x}]$

76. B $\int \frac{1}{\sqrt{x}\cdot\sin^2(\sqrt{x})}\,dx$ $[-2\cdot\operatorname{ctg}(\sqrt{x})+c;t=\sqrt{x}]$

77. B $\int \frac{\cos(\sqrt[3]{x})}{\sqrt[3]{x^2}}\,dx$ $[3\cdot\sin(\sqrt[3]{x})+c;t=\sqrt[3]{x}]$

78. B $\int \frac{3}{x+\sqrt{x}}\,dx$ $\left[6\cdot\ln|\sqrt{x}+1|+c;t=\sqrt{x}\right]$

79. B $\int \frac{\mathrm{e}^x}{\sqrt{1-\mathrm{e}^{2x}}}\,dx$ $\left[\arcsin(\mathrm{e}^x)+c;t=\mathrm{e}^x\right]$

80. B $\int \frac{\mathrm{e}^x}{(\mathrm{e}^x+2)^3}\,dx$ $\left[-\frac{1}{2}\cdot\frac{1}{(\mathrm{e}^x+2)^2}+c;t=\mathrm{e}^x\right]$

81. $\int \sqrt{x}\cdot\sin(\sqrt{x})\,dx$ $\left[-2\cdot x\cdot\cos(\sqrt{x})+4\cdot\cos(\sqrt{x})+4\cdot\sqrt{x}\cdot\sin(\sqrt{x})+c;t=\sqrt{x}\right]$

82. $\int \frac{\mathrm{e}^{2x}}{1+\mathrm{e}^x}\,dx$ $\left[\mathrm{e}^x-\ln(1+\mathrm{e}^x)+c;t=\mathrm{e}^x\right]$

83. $\int \sin(\ln x)\,dx$ $\left[-\frac{1}{2}\cdot x\cdot\cos(\ln(x))+\frac{1}{2}\cdot x\cdot\sin(\ln(x))+c;t=\ln x\right]$

84. $\int \frac{\mathrm{e}^{3x}}{\mathrm{e}^x+2}\,dx$ $\left[\frac{1}{2}\cdot\mathrm{e}^{2x}-2\cdot\mathrm{e}^x+4\cdot\ln(\mathrm{e}^x+2)+c;t=\mathrm{e}^x\right]$

85. $\int \frac{5}{\mathrm{e}^{2x}+1}\,dx$ $\left[5\cdot\ln(e^x)-\frac{5}{2}\ln(\mathrm{e}^{2x}+1)+c;t=\mathrm{e}^x\right]$

86. B $\int \operatorname{arctg}(\sqrt{x})\,dx$ $\left[x\cdot\operatorname{arctg}(\sqrt{x})-\sqrt{x}+\operatorname{arctg}(\sqrt{x})+c;t=\sqrt{x}\right]$

87. $\int \frac{\sqrt{x+1}+1}{\sqrt{x+1}-1}\,dx$ $\left[x+1+4\cdot\sqrt{x+1}+4\cdot\ln|\sqrt{x+1}-1|+c;t=\sqrt{x+1}\right]$

88. $\int \frac{\sqrt{x}}{2-\sqrt{x}}\,dx$ $\left[-x-4\sqrt{x}-8\cdot\ln|2-\sqrt{x}|+c;t=\sqrt{x}\right]$

89. B $\int \cos(\sqrt{x-3})\,dx$ $\left[2\cdot\cos(\sqrt{x-3})+2\cdot\sqrt{x-3}\cdot\sin(\sqrt{x-3})+c;t=\sqrt{x-3}\right]$

90. $\int \frac{2\mathrm{e}^{2x}+3\mathrm{e}^x}{\mathrm{e}^{2x}+1}\,dx$ $\left[\ln(\mathrm{e}^{2x}+1)+3\cdot\operatorname{arctg}(\mathrm{e}^x)+c;t=\mathrm{e}^x\right]$

91. $\int \frac{5\mathrm{e}^{2x}-8\mathrm{e}^x}{2\mathrm{e}^{2x}+9\mathrm{e}^x-5}\,dx$ $\left[3\cdot\ln(\mathrm{e}^x+5)-\frac{1}{2}\cdot\ln|2\mathrm{e}^x-1|+c;t=\mathrm{e}^x\right]$

92. B $\int \frac{3x-4}{\sqrt{6x-7}}\,dx$ $\left[\frac{1}{18}\cdot\sqrt{(6x-7)^3}-\frac{1}{6}\cdot\sqrt{6x-7}+c;t=\sqrt{6x-7}\right]$

93. B $\int \frac{5x+1}{\sqrt{2-3x}}\,dx$ $\left[\frac{10}{27}\cdot\sqrt{(2-3x)^3}-\frac{26}{9}\cdot\sqrt{2-3x}+c;t=\sqrt{2-3x}\right]$

94. B $\int (2x-3)\sqrt{7x+2}\,dx$ $\left[\frac{4}{245}\cdot\sqrt{(7x+2)^5}-\frac{50}{147}\cdot\sqrt{(7x+2)^3}+c;t=\sqrt{7x+2}\right]$

95. B $\int (4-5x)\sqrt{2+9x}\,dx$ $\left[-\frac{2}{81}\cdot\sqrt{(2+9x)^5}+\frac{92}{243}\cdot\sqrt{(2+9x)^3}+c;t=\sqrt{2+9x}\right]$

96. B $\int (4x+1)\sqrt[4]{3x+2}\,dx$ $\left[\frac{16}{81}\cdot\sqrt[4]{(3x+2)^9}-\frac{4}{9}\cdot\sqrt[4]{(3x+2)^5}+c;t=\sqrt[4]{3x+2}\right]$

97. B $\int \sin(\sqrt{2x+5})\,dx$ $\left[\sin(\sqrt{2x+5})-\sqrt{2x+5}\cos(\sqrt{2x+5})+c;t=\sqrt{2x+5}\right]$

98. $\int \frac{7\sqrt{x}+17}{x\sqrt{x}+4x+3\sqrt{x}}\,dx$ $\left[10\cdot\ln|\sqrt{x}+1|+4\cdot\ln|\sqrt{x}+3|+c;t=\sqrt{x}\right]$

99. $\int \mathrm{e}^{\sqrt{4-2x}}\,dx$ $\left[-\sqrt{4-2x}\cdot\mathrm{e}^{\sqrt{4-2x}}+\mathrm{e}^{\sqrt{4-2x}}+c;t=\sqrt{4-2x}\right]$

100. $\int \frac{5\sqrt[3]{x}-11}{x\sqrt[3]{x}-3x-10\sqrt[3]{x^2}}\,dx$ $\left[9\cdot\ln|\sqrt[3]{x}+2|+6\cdot\ln|\sqrt[3]{x}-5|+c;t=\sqrt[3]{x}\right]$

101. $\int \frac{9\sqrt[3]{x^2}+4\sqrt[3]{x}-1}{(2\sqrt[3]{x}-1)(9\sqrt[3]{x^2}+1)5\sqrt[3]{x^2}}\,dx$ $\left[\frac{3}{10}\cdot\ln|2\sqrt[3]{x}-1|+\frac{2}{5}\mathrm{arctg}(3\sqrt[3]{x})+c;t=\sqrt[3]{x}\right]$

102. $\int \frac{\mathrm{e}^x-8}{\mathrm{e}^x+4}\,dx$ $\left[3\cdot\ln(\mathrm{e}^x+4)-2\cdot\ln(\mathrm{e}^x)+c;t=\mathrm{e}^x\right]$

103. $\int \frac{5\mathrm{e}^{2x}-23\mathrm{e}^x}{\mathrm{e}^{2x}+4\mathrm{e}^x-5}\,dx$ $\left[8\cdot\ln(\mathrm{e}^x+5)-3\cdot\ln|\mathrm{e}^x-1|+c;t=\mathrm{e}^x\right]$

104. $\int \frac{7-\sqrt[3]{x}}{(2\sqrt[3]{x}-1)(\sqrt[3]{x}+6)3\sqrt[3]{x^2}}\,dx$ $\left[-\ln|\sqrt[3]{x}+6|+\frac{1}{2}\cdot\ln|2\sqrt[3]{x}-1|+c;t=\sqrt[3]{x}\right]$

105. $\int \frac{14}{6\sqrt[3]{x^4}+\sqrt[3]{x^2}}\,dx$ $\left[7\cdot\sqrt{6}\cdot\mathrm{arctg}(\sqrt{6}\cdot\sqrt[3]{x})+c;t=\sqrt[3]{x}\right]$

106. $\int \frac{(6\mathrm{e}^{2x}+30+7\mathrm{e}^x)\mathrm{e}^x}{(\mathrm{e}^x+4)(3\mathrm{e}^{2x}+1)}\,dx$ $\left[2\cdot\ln(\mathrm{e}^x+4)+\frac{7}{\sqrt{3}}\cdot\mathrm{arctg}(\sqrt{3}\cdot\mathrm{e}^x)+c;t=\mathrm{e}^x\right]$

107. $\int \frac{\sqrt[3]{x^2}+21\sqrt[3]{x}-32}{(\sqrt[3]{x}+7)(\sqrt[3]{x^2}+16)3\sqrt[3]{x^2}}\,dx$
$\left[-2\ln|\sqrt[3]{x}+7|+\frac{3}{2}\cdot\ln|\sqrt[3]{x^2}+16|+c=-2\ln|\sqrt[3]{x}+7|+\frac{3}{2}\cdot\ln(\sqrt[3]{x^2}+16)+c;t=\sqrt[3]{x}\right]$

108. $\int_0^{13}(5x-7)\sqrt[3]{2x+1}\,dx$ $\left[886,07;D=R;t=\sqrt[3]{2x+1}\right]$

109. $\int_0^3 \frac{\sqrt{x+1}}{x+5}\,dx$ $\left[0,71;D=[-1;\infty);t=\sqrt{x+1}\right]$

110. $\int_0^{\pi}\sin(\sqrt[3]{x})\,dx$ $\left[2,69;D=R;t=\sqrt[3]{x}\right]$

111. $\int_{-2}^{1}\mathrm{e}^{\sqrt{2-x}}\,dx$ $\left[\left[-2\cdot\mathrm{e}^{\sqrt{2-x}}\cdot\sqrt{2-x}+2\cdot\mathrm{e}^{\sqrt{2-x}}\right]_{-2}^{1}=2\mathrm{e}^2;D=(-\infty;2];t=\sqrt{2-x}\right]$

112. $\int_1^8 \frac{\mathrm{e}^{\sqrt[3]{x}}}{\sqrt[3]{x^2}}\,dx$ $\left[3\mathrm{e}^2-3\mathrm{e}=14,01; D=R-\{0\}; t=\sqrt[3]{x}\right]$

113. $\int_0^5 \frac{x}{\sqrt{3x+1}}\,dx$ $\left[4; D=\left(-\frac{1}{3};\infty\right); t=\sqrt{3x+1}\right]$

114. $\int_{-1}^0 \frac{3}{\mathrm{e}^x+1}\,dx$ $[1,86; D=R; t=\mathrm{e}^x]$

115. $\int_0^1 \frac{4}{\mathrm{e}^x+2}\,dx$ $[1,09; D=R; t=\mathrm{e}^x]$

IMPROPRIUS INTEGRÁL

116. B $\int_2^\infty \frac{1}{x^2}\,dx$ $\left[\frac{1}{2}; D=R-\{0\}\right]$

117. B $\int_3^\infty \frac{5}{x^3}\,dx$ $\left[\frac{5}{18}; D=R-\{0\}\right]$

118. B $\int_{-\infty}^{-3} \frac{1}{4x^2}\,dx$ $\left[\frac{1}{12}; D=R-\{0\}\right]$

119. B $\int_1^\infty \frac{2}{(x+1)^5}\,dx$ $\left[\frac{1}{32}; D=R-\{-1\}\right]$

120. B $\int_5^\infty \frac{3}{7x^3}\,dx$ $\left[\frac{3}{350}; D=R-\{0\}\right]$

121. B $\int_1^\infty \frac{1}{x}\,dx$ $[\infty; D=R-\{0\}]$

122. B $\int_{-\infty}^{-1} \frac{4}{x}\,dx$ $[-\infty; D=R-\{0\}]$

123. B $\int_{\mathrm{e}}^\infty \frac{1}{x\cdot\ln x}\,dx$ $[\infty; D=(0;1)\cup(1;\infty)]$

124. B $\int_{\mathrm{e}}^\infty \frac{1}{x\cdot\ln^2 x}\,dx$ $[1; D=(0;1)\cup(1;\infty)]$

125. B $\int_6^\infty \frac{2}{(x-3)^4}\,dx$ $\left[\frac{2}{81}; D=R-\{3\}\right]$

126. B $\int_0^\infty \mathrm{e}^{-2x}\,dx$ $\left[\frac{1}{2}; D=R\right]$

127. B $\int_{-\infty}^{-1} \mathrm{e}^{-4x+3}\,dx$ $[\infty; D=R]$

128. $\int_{-\infty}^{-1} \frac{x}{x^2+1}\,dx$ $[-\infty; D=R]$

129. B $\int_{-\infty}^{1} \frac{1}{\sqrt[3]{4-3x}}\,dx$ $\left[\infty; D=R-\left\{\frac{4}{3}\right\}\right]$

130. B $\int_{-\infty}^{-1} \frac{1}{1+9x^2}\,dx$ $[0,11; D=R]$

131. B $\int_{1}^{\infty} \frac{6}{5\sqrt[3]{x}}\,dx$ $[\infty; D=R-\{0\}]$

132. $\int_{-\infty}^{-4} \frac{4}{x^2-4}\,dx$ $[\ln(3); D=R-\{-2;2\}]$

133. $\int_{-\infty}^{0} \frac{2}{3+x^2}\,dx$ $\left[\frac{\sqrt{3}}{3}\pi; D=R\right]$

134. $\int_{3}^{\infty} \left(\frac{1}{\sqrt{x+1}}+\frac{1}{(x+1)^2}\right)dx$ $[\infty; D=(-1;\infty)]$

135. $\int_{-\infty}^{\infty} \frac{2}{1+x^2}\,dx$ $[2\pi; D=R]$

136. $\int_{-\infty}^{\infty} \frac{4}{1+x^2}\,dx$ $[4\pi; D=R]$

137. $\int_{-\infty}^{\infty} \mathrm{e}^{3x}\,dx$ $[\infty; D=R]$

138. $\int_{-\infty}^{\infty} \frac{5}{x^2-2x+2}\,dx$ $[5\pi; D=R]$

139. $\int_{-\infty}^{\infty} \frac{3}{x^2+2x+2}\,dx$ $[3\pi; D=R]$

140. B $\int_{0}^{3} \frac{1}{\sqrt{x}}\,dx$ $\left[2\sqrt{3}; D=(0;+\infty)\right]$

141. $\int_{0}^{2} \frac{x}{\sqrt{2-x}}\,dx$ $\left[\frac{8\sqrt{2}}{3}; D=(-\infty;2)\right]$

142. B $\int_{-3}^{0} \frac{1}{\sqrt[3]{(x+3)^2}}\,dx$ $\left[3\sqrt[3]{3}; D=R-\{-3\}\right]$

143. B $\int_{-3}^{0} \frac{1}{(x+3)^2}\,dx$ $[\infty; D=R-\{-3\}]$

144. B $\int_{-2}^{0} \frac{7}{(x+2)^3}\,dx$ $[\infty; D=R-\{-2\}]$

145. $\int_0^2 \frac{3}{(4-2x)^4}\,dx$ $[\infty; D = R - \{2\}]$

146. $\int_1^5 \frac{1}{\sqrt[5]{(5-x)^3}}\,dx$ $\left[\frac{5}{2}\cdot\sqrt[5]{16}; D = R - \{5\}\right]$

147. $\int_{\frac{4}{3}}^5 \frac{1}{\sqrt{3x-4}}\,dx$ $\left[\frac{2\sqrt{11}}{3}; D = \left(\frac{4}{3};\infty\right)\right]$

148. $\int_{-1}^0 \frac{1}{\sqrt{1-x^2}}\,dx$ $\left[\frac{\pi}{2}; D = (-1;1)\right]$

149. $\int_0^2 \frac{1}{\sqrt{4-x^2}}\,dx$ $\left[\frac{\pi}{2}; D = (-2;2)\right]$

150. $\int_0^5 \frac{1}{\sqrt{25-x^2}}\,dx$ $\left[\frac{1}{2}\pi; D = (-5;5)\right]$

151. B $\int_{-1}^0 \frac{3}{(1+x^2)\cdot \operatorname{arctg}^2 x}\,dx$ $[\infty; D = R - \{0\}]$

152. B $\int_0^1 \frac{7}{(1+x^2)\cdot \operatorname{arctg}^3 x}\,dx$ $[\infty; D = R - \{0\}]$

153. B $\int_0^1 \frac{1}{x^2}\cdot \mathrm{e}^{\frac{1}{x}}\,dx$ $[\infty; D = R - \{0\}]$

154. $\int_1^{\mathrm{e}} \frac{1}{x\cdot\sqrt{\ln x}}\,dx$ $[2; D = (1;\infty)]$

155. $\int_0^{\frac{1}{\mathrm{e}}} \frac{1}{x\cdot \ln^3 x}\,dx$ $\left[-\frac{1}{2}; D = (0;1)\cup(1;\infty)\right]$

156. $\int_0^{\frac{2}{3}} \frac{3}{\sqrt{4-9x^2}}\,dx$ $\left[\frac{\pi}{2}; D = \left(-\frac{2}{3};\frac{2}{3}\right)\right]$

157. $\int_{-1}^1 \frac{x}{\sqrt{1-x^2}}\,dx$ $[0; D = (-1;1)]$

158. $\int_0^3 \frac{1}{\sqrt{3x-x^2}}\,dx$ $[\pi; D = (0;3)]$

159. $\int_0^6 \frac{1}{\sqrt{6x-x^2}}\,dx$ $[\pi; D = (0;6)]$

160. $\int_0^{\frac{\pi}{2}} \frac{\cos x}{\sin^2 x}\,dx$ $[\infty; D = R - \{k\cdot\pi\}; k \in Z]$

161. $\int_0^{\frac{\pi}{2}} \frac{\cos x}{\sqrt{\sin x}}\,dx$ $[2; D = (0 + k\cdot 2\pi; \pi + k\cdot 2\pi); k \in Z]$

162. $\int_3^6 \left(\frac{1}{\sqrt[3]{x-6}} + \frac{1}{(x-6)^2} \right) dx$ $[\infty; D = R - \{6\}]$

163. $\int_1^3 \left(\frac{1}{\sqrt[3]{3x-9}} + \frac{1}{(3x-9)^2} \right) dx$

164. $\int_{-5}^5 \frac{1}{\sqrt[5]{(x+2)^3}}\, dx$ $[1,57; D = R - \{-2\}]$

165. $\int_1^{10} \frac{1}{\sqrt[3]{(x-2)^2}}\, dx$ $[9; D = R - \{2\}]$

166. $\int_0^5 \frac{1}{\sqrt[5]{(x-4)^4}}\, dx$ $[11,60; D = R - \{4\}]$