Найти интегралы (1.10—1.16):

1.10. 1) $\int \dfrac{6x-7}{3x^2-7x+1}\,dx.$ 2) $\int \dfrac{3x-2}{2-3x+5x^2}\,dx.$

3) $\int \dfrac{x-1}{x^2-x-1}\,dx.$ 4) $\int \dfrac{2x-1}{5x^2-x+2}\,dx.$

5) $\int \dfrac{3x-6}{\sqrt{x^2-4x+5}}\,dx.$ 6) $\int \dfrac{x+3}{\sqrt{4x^2+4x+3}}\,dx.$

7) $\int \dfrac{x+3}{\sqrt{3+4x-4x^2}}\,dx.$ 8) $\int \dfrac{x^3+x}{\sqrt{1+x^2-x^4}}\,dx.$

9) $\int \dfrac{dx}{x\sqrt{3+7x^2}}.$ 10) $\int \dfrac{dx}{(x-1)\sqrt{x^2-3x+2}},\ x>2.$

11) $\int \sqrt{x-x^2}\,dx.$ 12) $\int \sqrt{x^2+2x+5}\,dx.$

1.11. 1) $\int \dfrac{x\,dx}{(1-x^2)^3}.$ 2) $\int \left(\dfrac{x}{x^5+2}\right)^4 dx.$

3) $\int \dfrac{x\,dx}{(1-x)^{12}}.$ 4) $\int \dfrac{x^5\,dx}{x+1}.$

5) $\int \dfrac{3x^2-1}{x^3-x+1}\,dx.$ 6) $\int \dfrac{x\,dx}{x^4+6x^2+5}.$

7) $\int \dfrac{x^2+1}{x^4+1}\,dx.$ 8) $\int \dfrac{x^2-1}{x^4+1}\,dx.$

1.12. 1) $\int x^2\sqrt{x^3+1}\,dx.$ 2) $\int x\sqrt{1+x}\,dx.$

3) $\int x^3\sqrt{x^2-1}\,dx.$ 4) $\int \dfrac{x^3\,dx}{\sqrt{x-1}}.$

5) $\int \dfrac{dx}{1+\sqrt[3]{x+1}}.$ 6) $\int \dfrac{dx}{\sqrt{x}+\sqrt[4]{x}}.$

7) $\int \dfrac{\sqrt[3]{x}\,dx}{x(\sqrt{x}+\sqrt[3]{x})}.$ 8) $\int \dfrac{\sqrt{(9-x^2)^3}}{x^6}\,dx.$

9) $\int \dfrac{dx}{x^2\sqrt{x^3-1}}.$ 10) $\int \dfrac{dx}{x^4\sqrt{1+x^2}}.$

1.13. 1) $\int xe^{-x^2}\,dx.$ 2) $\int e^{2x^2+2x-1}(2x+1)\,dx.$

3) $\int \dfrac{dx}{1+e^{3x}}.$ 4) $\int \dfrac{dx}{e^x+\sqrt{e^x}}.$

5) $\int e^{\sqrt{x}}\dfrac{dx}{\sqrt{x}}.$ 6) $\int \dfrac{e^x\,dx}{\sqrt{4-e^{2x}}}.$

7) $\int \dfrac{dx}{\sqrt{e^x-1}}.$ 8) $\int \dfrac{e^{2x}\,dx}{\sqrt{e^{4x}+1}}.$

9) $\int \dfrac{2^x\,dx}{\sqrt{1-4^x}}.$ 10) $\int \dfrac{e^{2x}\,dx}{\sqrt[4]{1+e^x}}.$

11) $\int \dfrac{dx}{\operatorname{sh}x}.$ 12) $\int \dfrac{dx}{\operatorname{ch}x}.$

13) $\int \dfrac{\operatorname{sh}x\cdot\operatorname{ch}^2 x}{1+\operatorname{ch}^3 x}\,dx.$ 14) $\int \dfrac{\operatorname{sh}^2 x\,dx}{\operatorname{ch}^6 x}.$

1.14. 1) $\int \dfrac{\ln^2 x}{x}\,dx.$ 2) $\int \dfrac{dx}{x\ln x\ln\ln x}.$

3) $\int \dfrac{\ln 2x}{x\ln 4x}\,dx.$ 4) $\int \ln\dfrac{1+x}{1-x}\dfrac{dx}{x^2-1}.$

5) $\int \dfrac{\ln x\,dx}{x\sqrt{1+\ln x}}.$ 6) $\int \dfrac{\ln x\,dx}{x\sqrt{1-4\ln x-\ln^2 x}}.$

1.15. 1) $\int \sin^6 x\cos x\,dx.$ 2) $\int \dfrac{\sin x\,dx}{1+\cos x}.$

3) $\int \dfrac{1}{x^2}\cos\dfrac{1}{x}\,dx.$ 4) $\int \operatorname{ctg}x\,dx.$

5) $\int \dfrac{dx}{\cos x}.$ 6) $\int \dfrac{dx}{3\cos^2 x+4\sin^2 x},\ |x|<\dfrac{\pi}{2}.$

7) $\int \dfrac{\sin\sqrt{x}}{\sqrt{x}}\,dx.$ 8) $\int \sqrt{\sin x}\cos^5 x\,dx.$

9) $\int \dfrac{\sin^3 x}{\sqrt{\cos x}}\,dx.$ 10) $\int \dfrac{\sin x\,dx}{\sqrt{1+2\cos x}}.$

11) $\int \dfrac{\sin x\,dx}{\sqrt{\cos 2x}}.$ 12) $\int \dfrac{\cos x\,dx}{\sqrt{\cos 2x}}.$

13) $\int \dfrac{\sin 2x\,dx}{\sqrt{25\sin^2 x+9\cos^2 x}}.$ 14) $\int \dfrac{\sin 2x\,dx}{\sqrt{\sin^4 x-\cos^4 x}}.$

15) $\int \dfrac{\sqrt[4]{\operatorname{tg}x}\,dx}{\sin^2 x}.$ 16) $\int \dfrac{\sin x\,dx}{\sqrt{1+4\cos x+\cos^2 x}}.$

17) $\int \dfrac{\cos\ln x}{x}\,dx.$ 18) $\int \dfrac{\ln\operatorname{tg}x}{\sin 2x}\,dx.$

19) $\int \dfrac{e^{\operatorname{tg}x}+\operatorname{ctg}x}{\cos^2 x}\,dx.$ 20) $\int \dfrac{\cos x\,dx}{\sqrt{e^{\sin x}-1}}.$

1.16. 1) $\int \dfrac{dx}{\sqrt{1-x^2}\arcsin x}.$ 2) $\int \sqrt{\dfrac{\arcsin x}{1-x^2}}\,dx.$

3) $\int \dfrac{\arccos^2 2x}{\sqrt{1-4x^2}}\,dx.$ 4) $\int \dfrac{\ln\arccos x\,dx}{\sqrt{1-x^2}\arccos x}.$

5) $\int \dfrac{\operatorname{arctg}^2 x}{1+x^2}\,dx.$ 6) $\int \dfrac{\sqrt[3]{\operatorname{arcctg}x}}{1+x^2}\,dx.$

7) $\int \dfrac{\operatorname{arctg}\sqrt{x}\,dx}{(1+x)\sqrt{x}}.$ 8) $\int \dfrac{\operatorname{arctg}e^x}{\operatorname{ch}x}\,dx.$