**1.** $\int \cos^5 2x \sin 2x \, \mathrm{d}x$ $\quad -\frac{1}{12}\cos^6 2x + C$

**2.** $\int \cos^5 x \, \mathrm{d}x$ $\quad \sin x - \frac{2}{3}\sin^3 x + \frac{1}{5}\sin^5 x + C$

**3.** $\int \frac{\sin^3 x}{\cos^4 x}\mathrm{d}x$ $\quad \frac{1}{3\cos^3 x} - \frac{1}{\cos x} + C$

**4.** $\int \frac{\mathrm{d}x}{\sin x \cos^3 x}$ $\quad \ln|\operatorname{tg} x| + \frac{1}{2}\operatorname{tg}^2 x + C$

**5.** $\int \operatorname{cotg}^3 x \, \mathrm{d}x$ $\quad -\frac{1}{2}\operatorname{cotg}^2 x - \ln|\sin x| + C$

**6.** $\int \frac{\sin x - \cos x}{\sin x + \cos x}\mathrm{d}x$ $\quad -\ln|\sin x + \cos x| + C$

**7.** $\int \frac{\mathrm{d}x}{5 - 3\cos x}$ $\quad \frac{1}{2}\operatorname{arctg}(2\operatorname{tg}\frac{x}{2}) + C$

**8.** $\int \frac{\cos x}{1+\cos x}\mathrm{d}x$ $\quad x - \frac{\sin x}{1+\cos x} + C$

**9.** $\int \frac{\mathrm{d}x}{\sin x + \cos x}$ $\quad \frac{\sqrt{2}}{2}\ln\left|\frac{1+\sqrt{2}\sin x}{\sqrt{2}+1+(2+\sqrt{2})\cos x}\right| + C$

**10.** $\int \frac{\mathrm{d}x}{\cos x + 2\sin x + 3}$ $\quad \operatorname{arctg}(1 + \operatorname{tg}\frac{x}{2}) + C$

**11.** $\int \sin x \sin 2x \sin 3x \, \mathrm{d}x$ $\quad -\frac{1}{8}\cos 2x + \frac{1}{24}\cos 6x - \frac{1}{16}\cos 4x + C$

**12.** $\int \cosh^3 x \, \mathrm{d}x$ $\quad \frac{2}{3}\sinh x - \frac{1}{3}\cosh^2 x \sinh x + C$

**13.** $\int \operatorname{tgh} x \, \mathrm{d}x$ $\quad \ln\cosh x + C$

**14.** $\int \frac{\mathrm{d}x}{(2-x)\sqrt{1-x}}$ $\quad -2\operatorname{arctg}\sqrt{x-1} + C$

**15.** $\int \frac{\mathrm{d}x}{1+\sqrt[3]{x}}$ $\quad \frac{3}{2}\sqrt[3]{x^2} - 3\sqrt[3]{x} + 3\ln|1+\sqrt[3]{x}| + C$

**16.** $\int \frac{\sqrt{x}}{1-\sqrt[3]{x}}\mathrm{d}x$ $\quad \frac{1}{7}x^{\frac{7}{6}} + \frac{1}{5}x^{\frac{5}{6}} + \frac{1}{3}x^{\frac{1}{2}} + x^{\frac{1}{6}} + \ln\left|\frac{x^{\frac{1}{6}}-1}{x^{\frac{1}{6}}+1}\right| + C$

**17.** $\int \frac{\mathrm{d}x}{x\sqrt{x-4}}$ $\quad \operatorname{arctg}\frac{\sqrt{x-4}}{2} + C$

**18.** $\int \sqrt{\frac{1+x}{1-x}}\,\mathrm{d}x$ $\quad -\frac{1}{2}\sqrt{\frac{1-x}{1+x}} + \sqrt{\frac{1+x}{1-x}} + \frac{1}{6}\left(\frac{1+x}{1-x}\right)^{\frac{3}{2}} + C$

**19.** $\int \frac{\mathrm{d}x}{\sqrt{3-2x-5x^2}}$ $\quad -\frac{2}{\sqrt{5}}\operatorname{arctg}\sqrt{\frac{3-5x}{5+5x}} + C$

**20.** $\int \frac{x-1}{\sqrt{x^2-2x+2}}\mathrm{d}x$ $\quad \sqrt{x^2-2x+2} + C$

**21.** $\int \frac{\mathrm{d}x}{(9+x^2)\sqrt{9+x^2}}$ $\quad \frac{1}{9}\frac{x}{\sqrt{9+x^2}} + C$

**22.** $\int \sqrt{3-2x-x^2}\,\mathrm{d}x$ $\quad -4\operatorname{arctg}\sqrt{\frac{1-x}{x+3}} - \frac{x+1}{2}\sqrt{3-2x-x^2} + C$

**23.** $\int \frac{2x+1}{\sqrt{x^2+x}}\mathrm{d}x$ — $2\sqrt{x^2+x}+C$

**24.** $\int \frac{\sqrt{x^2+2x}}{x}\mathrm{d}x$ — $\ln|x+1+\sqrt{x^2+2x}|+\sqrt{x^2+2x}+C$

**25.** $\int \frac{\mathrm{d}x}{\sqrt{25+9x^2}}$ — $\frac{1}{6}\ln\left|\frac{\sqrt{25+9x^2}+3x}{\sqrt{25+9x^2}-3x}\right|+C$

**26.** $\int \frac{3\,\mathrm{d}x}{\sqrt{9x^2-1}}$ — $\arccos\frac{1}{3x}+C$

**27.** $\int e^{ax}\cos bx\,\mathrm{d}x$ — $\frac{e^{ax}}{a^2+b^2}\,(a\cos bx+b\sin bx)+C$

**29.** $\int(3x^2+2x+1)\sin\frac{x}{3}\mathrm{d}x$ — $-(9x^2+6x-159)\cos\frac{x}{3}+(18x+6)\sin\frac{x}{3}+C$

**30.** $\int(3x^2+1)\ln(x-4)\,\mathrm{d}x$ — $x(x^2+1)\ln(x-4)-\frac{1}{3}x^3+2x^2+17x+68\ln|x-4|+C$

**31.** $\int\left(\frac{\ln x}{x}\right)^2\mathrm{d}x$ — $-\frac{1}{x}(\ln^2 x-2\ln x-2)+C$

**32.** $\int x^2\operatorname{arctg}3x\,\mathrm{d}x$ — $\frac{1}{3}x^3\operatorname{arctg}3x-\frac{1}{18}x^2+\frac{1}{162}\ln(1+9x^2)+C$

**33.** $\int\arcsin^2 x\,\mathrm{d}x$ — $x\arcsin^2 x+2\sqrt{1-x^2}\arcsin x-2x+C$

**34.** $\int\sin x\sinh x\,\mathrm{d}x$ — $\frac{1}{2}(\sin x\cosh x-\cos x\sinh x)+C$

**35.** $\int(4x^3+2x)\operatorname{arctg}x\,\mathrm{d}x$ — $(x^4+x^2)\operatorname{arctg}x-\frac{1}{3}x^3+C$

**36.** $\int\frac{\mathrm{d}x}{(2x^2+2)\sqrt{\operatorname{arccotg}^3 x}}$ — $\frac{1}{\sqrt{\operatorname{arccotg}x}}+C$

**37.** $\int(2x-1)\arccos x\,\mathrm{d}x$ — $\operatorname{arctg}\sqrt{\frac{x-1}{x+1}}+\frac{1}{2}(x^2-x-2)\sqrt{\frac{x-1}{x+1}}+C$

**38.** $\int(x^2-3x+1)\cosh 2x\,\mathrm{d}x$ — $\frac{1}{2}(x^2-3x+1)\sinh 2x-\frac{1}{4}(2x-3)\cosh 2x+\frac{1}{4}\sinh 2x+C$

**39.** $\int_0^3|1-3x|\mathrm{d}x$ — $\frac{65}{6}$

**40.** $\int_{-4}^{-2}\frac{1}{x}\mathrm{d}x$ — $-\ln 2$

**41.** $\int_0^{\pi}\cos x\,\mathrm{d}x$ — $0$

**42.** $\int_0^{\pi}|\cos x|\,\mathrm{d}x$ — $2$

**43.** $\int_0^{\pi}\sin^3 x\,\mathrm{d}x$ — $\frac{4}{3}$

**44.** $\int_0^{\frac{\pi}{2}}\cos x\cdot\sin^2 x\,dx$ — $\frac{1}{3}$

**45.** $\int_0^1\frac{\sqrt{x}}{1+\sqrt{x}}\,dx$ — $\ln 4-1$

**46.** $\int_{-1}^{1}\frac{\mathrm{d}x}{(1+x^2)^2}$ — $\frac{\pi+1}{2}$

**47.** $\int_0^{\sqrt{2}}\sqrt{4-x^2}\,dx$ — $1+\frac{\pi}{2}$

**48.** $\int_0^{\ln 5}\frac{e^x\sqrt{e^x-1}}{e^x+3}\,dx$ — $4-\pi$

**49.** $\int_1^2 \frac{\mathrm{d}x}{\sqrt{3+2x-x^2}}$ $\boxed{\frac{\pi}{6}}$

**50.** $\int_0^{\frac{\pi}{2}} \frac{\sin\varphi}{6-5\cos\varphi+\cos^2\varphi}\mathrm{d}\varphi$ $\boxed{\ln\frac{4}{3}}$

**51.** $\int_0^1 xe^{-x}\mathrm{d}x$ $\boxed{\frac{e-2}{e}}$

**52.** $\int_1^e \ln x\,dx$ $\boxed{1}$

**53.** $\int_0^{\frac{\pi}{2}} x\sin x\,dx$ $\boxed{1}$

**54.** $\int_1^2 x\ln x\,dx$ $\boxed{2\ln 2-\frac{3}{4}}$

**55.** $\int_0^1 x^3e^{2x}\mathrm{d}x$ $\boxed{\frac{e^2+3}{8}}$

**56.** $\int_0^{\frac{\pi}{2}} e^{2x}\sin x\,\mathrm{d}x$ $\boxed{\frac{2}{5}e^{\pi}+\frac{1}{5}}$

**57.** $\int_{\frac{\pi}{3}}^{\frac{\pi}{4}} x\sin^{-2}x\,dx$ $\boxed{\frac{\pi}{3}-\frac{\sqrt{3}}{3}\pi+\frac{1}{2}\ln 2}$

**58.** $\int_{-1}^1 \arccos x\,\mathrm{d}x$ $\boxed{\pi}$

**59.** $\int_0^{\sqrt{3}} x\mathrm{arctg}\,x\,\mathrm{d}x$ $\boxed{\frac{2}{3}\pi-\frac{\sqrt{3}}{2}}$

**60.** $\int_0^{\ln 2} x\cosh x\,\mathrm{d}x$ $\boxed{\frac{1}{4}(3\ln 2-1)}$

**61.** $I_n=\int_0^{\frac{\pi}{2}}\sin^n x\,\mathrm{d}x$ $\boxed{I_0=\frac{\pi}{2},\ I_1=1,\ I_n=\frac{n-1}{n}I_{n-2}, n\geq 2}$