Spočtěte následující primitivní funkce.

1.* $\int \left(x^3 + 2x + \frac{17}{x}\right) \mathrm{d}x$　　　　**2.*** $\int \left(18e^x + 16e^{8x} - \frac{1}{x} + 3\cos x\right) \mathrm{d}x$

3.* $\int xe^{-x^2} \mathrm{d}x$　　　　**4.*** $\int \sin^2 x \, \mathrm{d}x$

5. $\int xe^x \, \mathrm{d}x$　　　　**6.** $\int \log x \, \mathrm{d}x$

7. $\int \mathrm{arctg}\, x \, \mathrm{d}x$　　　　**8.** $\int e^{ax} \cos bx \, \mathrm{d}x,\ a,b \in \mathbf{R}$

9. $\int \sqrt{x^6} \, \mathrm{d}x$　　　　**10.** $\int \cos^5 x \sqrt{\sin x} \, \mathrm{d}x$

11. $\int \frac{\log x}{x\sqrt{1+\log x}} \, \mathrm{d}x$　　　　**12.** $\int \frac{1}{\sin x} \, \mathrm{d}x$

13. $\int \frac{\arctan e^x}{e^x} \, \mathrm{d}x$　　　　**14.** $\int \sin^3 x \, \mathrm{d}x$

15. $\int \frac{x}{x^2-x+2} \, \mathrm{d}x$　　　　**16.** $\int \frac{x}{x^4-2x^2-1} \, \mathrm{d}x$

17. $\int \frac{x^3+1}{x^3-5x^2+6x} \, \mathrm{d}x$　　　　**18.** $\int \frac{x}{x^3-1} \, \mathrm{d}x$

19. $\int \frac{x^2}{(x+2)^2(x+4)^2} \, \mathrm{d}x$　　　　**20.** $\int \frac{3\sin^2 x+\cos^2 x}{\sin^2 x+3\cos^2 x} \, \mathrm{d}x$　　na $(-\pi/2, \pi/2)$

21. $\int (\mathrm{tg}\, x)^5 \, \mathrm{d}x$　　　　**22.** $\int \frac{\sin x}{1+\sin x} \, \mathrm{d}x$

23. $\int \frac{1}{1+\exp(x/2)+\exp(x/3)+\exp(x/6)} \, \mathrm{d}x$　　　　**24.** $\int \frac{\mathrm{d}x}{\cos x \cdot \sin^3 x}$

25. $\int \log^2 x \, \mathrm{d}x$　　　　**26.** $\int \frac{2x+1}{x^2+x+1} \, \mathrm{d}x$

27. $\int \frac{\exp x}{\exp x+1} \, \mathrm{d}x$

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1. $\frac{1}{4}x^4 + x^2 + 17\log|x|$, $x \in (-\infty, 0)$ a $x \in (0, +\infty)$　　**2.** $18e^x + 2e^{8x} - \log|x| + 3\sin x$, $x \in (-\infty, 0)$ a $x \in (0, +\infty)$　　**3.** $-\frac{1}{2}e^{-x^2}$, $x \in \mathbf{R}$　　**4.** $\frac{1}{2}x - \frac{1}{4}\sin 2x$, $x \in \mathbf{R}$　　**5.** $(x-1)e^x$, $x \in \mathbf{R}$　　**6.** $x\log x - x$, $x \in (0, +\infty)$　　**7.** $x\,\mathrm{arctg}\, x - \frac{1}{2}\log(1+x^2)$, $x \in \mathbf{R}$　　**8.** Pokud $a \neq 0$ nebo $b \neq 0$, pak je řešením funkce $\frac{e^{ax}}{a^2+b^2}(a\cos bx + b\sin bx)$, $x \in \mathbf{R}$; pokud $a = b = 0$, pak je řešením funkce x, $x \in \mathbf{R}$　　**9.** $F(x) = \begin{cases} -\frac{1}{4}x^4, & x \in (-\infty, 0\rangle, \\ \frac{1}{4}x^4, & x \in (0, +\infty) \end{cases}$　　**10.** $\frac{2}{3}\sin^{\frac{3}{2}} x - \frac{4}{7}\sin^{\frac{7}{2}} x + \frac{2}{11}\sin^{\frac{11}{2}} x$, $x \in (2k\pi, (2k+1)\pi)$, $k \in \mathbf{Z}$　　**11.** $\frac{2}{3}(1+\log x)^{\frac{3}{2}} - 2(1+\log x)^{\frac{1}{2}}$, $x \in (1/e, +\infty)$　　**12.** $\log|\mathrm{tg}\, \frac{x}{2}|$, $x \in (k\pi, (k+1)\pi)$, $k \in \mathbf{Z}$　　**13.** $-e^{-x}\,\mathrm{arctg}\, e^x + x - \frac{1}{2}\log(1+e^{2x})$, $x \in \mathbf{R}$　　**14.** $-\frac{1}{3}\sin^2 x \cos x - \frac{2}{3}\cos x$　　**15.** $\frac{1}{2}\log(x^2-x+2) + \frac{1}{\sqrt{7}}\,\mathrm{arctg}\, \frac{2x-1}{\sqrt{7}}$, $x \in \mathbf{R}$　　**16.** $\frac{1}{4\sqrt{2}}\log\left|\frac{x^2-1-\sqrt{2}}{x^2-1+\sqrt{2}}\right|$, $x \in (-\infty, -\sqrt{1+\sqrt{2}})$ nebo $x \in (-\sqrt{1+\sqrt{2}}), \sqrt{1+\sqrt{2}})$ nebo $(\sqrt{1+\sqrt{2}}, +\infty)$　　**17.** $x + \frac{1}{6}\log|x| - \frac{9}{2}\log|x-2| + \frac{28}{3}\log|x-3|$, $x \in (-\infty, 0)$ nebo $x \in (0, 2)$ nebo $x \in (2, 3)$ nebo $x \in (3, +\infty)$　　**18.** $\frac{1}{6}\log\frac{(x-1)^2}{x^2+x+1} + \frac{\sqrt{3}}{3}\,\mathrm{arctg}\, \frac{2x+1}{\sqrt{3}}$, $x \in (-\infty, 1)$ nebo $x \in (1, +\infty)$　　**19.** $2\log\left|\frac{x+4}{x+2}\right| - \frac{5x+12}{(x+2)(x+4)}$, $x \in (-\infty, -4)$ nebo $x \in (-4, -2)$ nebo $x \in (-2, +\infty)$　　**20.** $\frac{4}{\sqrt{3}}\,\mathrm{arctg}\left(\frac{1}{\sqrt{3}}\,\mathrm{tg}\, x\right) - x$　　**21.** $\frac{1}{4}\,\mathrm{tg}^4 x - \frac{1}{2}\,\mathrm{tg}^2 x + \frac{1}{2}\log(1+\mathrm{tg}^2 x)$, $x \in (-\pi/2 + k\pi, \pi/2 + k\pi)$, $k \in \mathbf{Z}$　　**22.** $\frac{2}{1+\mathrm{tg}\, \frac{x}{2}} + x$, $x \in (-\pi/2, \pi/2))$　　**23.** $-3\,\mathrm{arctg}(e^{x/6}) - \frac{3}{2}\log(e^{x/3}+1) - 3\log(e^{x/6}+1) + x$, $x \in \mathbf{R}$　　**24.** $\log|\mathrm{tg}\, x| - \frac{1}{2\sin^2 x}$,　　$x \in$

$(0, \pi/2) + k\pi/2, \; k \in \mathbf{Z}$ **25.** $x\log^2 x - 2x \log x + 2x, \qquad x \in (0, +\infty)$ **26.** $\log(x^2 + x + 1), \qquad x \in \mathbf{R}$
27. $\log(e^x + 1), \qquad x \in \mathbf{R}$