

EULEROVY SUBSTITUTE

Nalezněte primitivní funkce:

1. $\int \frac{1}{1+\sqrt{x^2+2x+2}} dx$
2. $\int \frac{dx}{\sqrt{-x^2+4x-3}}$
3. $\int \frac{dx}{\sqrt[3]{(x-1)^2(x+1)}}$
4. $\int \frac{x dx}{\sqrt{x+1}+\sqrt[3]{x+1}}$
5. $\int \sqrt{\frac{1-x}{1+x}} \frac{dx}{x}$
6. $\int \sqrt[3]{\frac{1-x}{1+x}} \frac{dx}{x}$
7. $\int \sqrt{x^2-2x-1} dx$

VÝSLEDKY

1. $\frac{-2}{\sqrt{x^2+2x+2}-x} - \log(\sqrt{x^2+2x+2}-x-1), x \in \mathbf{R}$
2. $-2 \arctg \sqrt{\frac{3-x}{x-1}}, x \in (1, 3)$
3. $-\log \left| 1 - \sqrt[3]{\frac{x+1}{x-1}} \right| + \frac{1}{2} \log \left(\sqrt[3]{\frac{(x+1)^2}{x-1}} + \sqrt[3]{\frac{x+1}{x-1}} + 1 \right) - \sqrt{3} \arctg \left(\frac{2}{\sqrt{3}} \sqrt[3]{\frac{x+1}{x-1}} + \frac{1}{\sqrt{3}} \right),$
 $x \in (1, +\infty)$ nebo $x \in (-1, 1)$ nebo $x \in (-\infty, -1)$
4. $6 \left(\frac{1}{9}(x+1)^{3/2} - \frac{1}{8}(x+1)^{4/3} + \frac{1}{7}(x+1)^{7/6} - \frac{1}{6}(x+1) + \frac{1}{5}(x+1)^{5/6} - \frac{1}{4}(x+1)^{2/3} \right), x \in (-1, +\infty)$
5. $\log \left| \frac{\sqrt{1+x}-\sqrt{1-x}}{\sqrt{1+x}+\sqrt{1-x}} \right| + 2 \arctg \sqrt{\frac{1-x}{1+x}}, x \in (-1, 0)$ nebo $x \in (0, 1)$
6. $\log \frac{|u^2-1|}{\sqrt{u^4+u^2+1}} - \sqrt{3} \arctg \frac{2u+1}{\sqrt{3}} + \sqrt{3} \arctg \frac{2u-1}{\sqrt{3}},$ kde $u = \sqrt[3]{\frac{1-x}{1+x}}, x \in (-\infty, -1)$ nebo $x \in (-1, 0)$ nebo $x \in (1, +\infty)$
7. $\frac{1}{2}(x-1)\sqrt{x^2-2x-1} - \log |x-1+\sqrt{x^2-2x-1}|, x \in (-\infty, 1-\sqrt{2})$ nebo $x \in (1+\sqrt{2}, +\infty)$