Odmocniny

$t\neq -1 \quad t\neq 4 \quad \sqrt[3]{x+2}\neq -1 \quad \sqrt[3]{x+2}\neq 4$

$x+2\neq -1 \qquad x+2\neq 64$

$x\neq -3 \qquad x\neq 62$

$(-\infty,-3) \quad (-3,62) \quad (62,\infty)$

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

2 VOS.

$t=\sqrt[3]{x+2} \qquad t^3-2=x \leftarrow \varphi(t)$

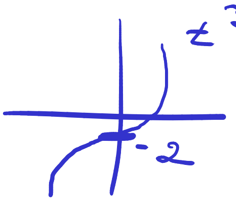
$3t^2\,dt = dx \qquad \varphi' = 3t^2 \qquad t\neq 0$ ✓

$$\int \frac{1}{t^2-3t-4}\cdot 3t^2\,dt = \int 3 - \frac{3/5}{t+1} + \frac{48/5}{t-4}\,dt \qquad t\neq -1 \quad t\neq 4$$

$$\stackrel{c}{=} 3t - \frac{3}{5}\ln|t+1| + \frac{48}{5}\ln|t-4| =$$

$$= 3\sqrt[3]{x+2} - \frac{3}{5}\ln|\sqrt[3]{x+2}+1| + \frac{48}{5}\ln|\sqrt[3]{x+2}-4| \qquad x\in(a,b)$$

$\varphi(t) \quad t\in(\alpha,\beta) \qquad (a,b)$



$(-\infty,-1) \xrightarrow[\text{na}]{\varphi} (-\infty,-3)$

$(-1,0) \xrightarrow{\varphi} (-3,-2)$

$(0,4) \longrightarrow (-2,62)$

$(4,\infty) \longrightarrow (62,\infty)$

v $x=-2$ slepíme

1. VOS $\qquad dt = \frac{1}{3}\frac{1}{\sqrt[3]{(x+2)^2}}\,dx$

$$\int \frac{1}{\sqrt[3]{(x+2)^2}-3\sqrt[3]{x+2}-4}\cdot\frac{3\sqrt[3]{(x+2)^2}}{3\sqrt[3]{(x+2)^2}}\,dx$$

$$\int \frac{3t^2}{3t^2-3t-4}\,dt$$

$$\int \frac{1}{x^2}\sqrt{\frac{1+x}{x}}\,dx$$

$a_1 \quad b_1$

$x \in (-\infty, -1)$

$x \in (0, \infty)$

$a_2 \quad b_2$

$$t = \sqrt{\frac{1+x}{x}} \qquad t^2 = \frac{1+x}{x} \qquad x t^2 = 1 + x \qquad x(t^2-1) = 1$$

$$x = \frac{1}{t^2-1}$$

$$dx = -1 \cdot \frac{2t}{(t^2-1)^2}\,dt$$

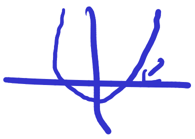
$$\int \frac{1}{\frac{1}{\cancel{(t^2-1)^2}}} \cdot t\,\frac{-2t}{\cancel{(t^2-1)^2}}\,dt = \int -2t^2\,dt \overset{c}{=} -\frac{2}{3}t^3$$

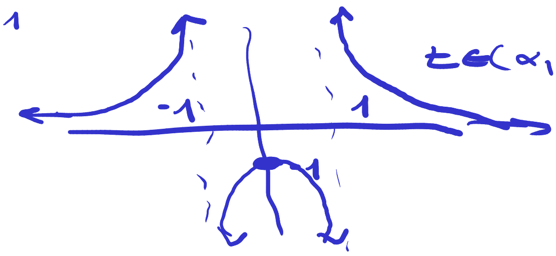
$$= \underline{-\frac{2}{3}\sqrt{\left(\frac{1+x}{x}\right)^3}} \longrightarrow \quad x \in (0, \infty) \quad x \in (-\infty, -1)$$

$t \neq \pm 1$

$$\varphi(t) = \frac{1}{t^2-1} \qquad \varphi' = \frac{-2t}{(t^2-1)^2} \qquad t \neq 0$$

$t^2 - 1$





$t \in (\alpha, \beta)$

$\alpha_1 \quad \beta_1 \qquad\qquad a_1 \quad b_1$

$(0, 1) \xrightarrow{\varphi \text{ na}} (-\infty, -1)$

$(1, \infty) \xrightarrow{\varphi \text{ na}} (0, \infty)$

$a_2 \quad b_2$

$$\sqrt{(x+2)(x-3)} = \sqrt{\frac{x+2}{x-3}(x-3)^2}$$

$$= \sqrt{\frac{x+2}{x-3}} \cdot |x-3| \quad .$$