

A

Vypočítejte hodnotu výrazu V pro $a = \frac{125}{27}$, $b = \sqrt{5}$:

$$V = \frac{\sqrt[3]{a^{-1} \cdot b^{\frac{1}{2}}}}{\sqrt{a} \cdot \sqrt[3]{b}} : \sqrt[4]{a^{-3} \cdot b^{-2}}$$

Výraz nejprve zjednodušíme:

$$\frac{\sqrt[3]{a^{-1} \cdot b^{\frac{1}{2}}}}{\sqrt{a} \cdot \sqrt[3]{b}} : \sqrt[4]{a^{-3} \cdot b^{-2}} = \frac{a^{-\frac{1}{3}} \cdot b^{\frac{1}{6}}}{a^{\frac{1}{2}} \cdot b^{\frac{1}{6}}} \cdot a^{\frac{3}{4}} \cdot b^{\frac{1}{2}} = \frac{a^{-\frac{1}{3}}}{a^{\frac{1}{2}}} \cdot a^{\frac{3}{4}} \cdot b^{\frac{1}{2}} = a^{\frac{-4-6+9}{12}} \cdot b^{\frac{1}{2}} = \frac{b^{\frac{1}{2}}}{a^{\frac{1}{12}}}$$

Dosazení do V:

$$\frac{b^{\frac{1}{2}}}{a^{\frac{1}{12}}} = \frac{(\sqrt{5})^{\frac{1}{2}}}{\left(\frac{125}{27}\right)^{\frac{1}{12}}} = \frac{5^{\frac{1}{4}}}{\frac{5^{\frac{3}{12}}}{3^{\frac{3}{12}}}} = 3^{\frac{1}{4}}$$

[Zpět:](#)