

DATA

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$$i) \log_{\sqrt[4]{3}} \frac{3}{\sqrt[3]{3}} \rightarrow \log_{\sqrt[4]{3}} \frac{3}{\sqrt[3]{3}} = x \rightarrow (\sqrt[4]{3})^x = \frac{3}{\sqrt[3]{3}}$$

$$\rightarrow 3^{\frac{x}{4}} = \frac{3^1}{3^{\frac{1}{3}}} \rightarrow 3^{\frac{x}{4}} = 3^{\frac{2}{3}} \rightarrow \frac{x}{4} = \frac{2}{3} \rightarrow x = \frac{8}{3}$$

$$\frac{1}{1} - \frac{1}{3} = \frac{3-1}{3} = \frac{2}{3}$$

B.111. Resolução: ☒

$$c) S = \underbrace{\log_{\sqrt[3]{9}} \sqrt{\frac{1}{27}}}_x - \underbrace{\log_{\sqrt[3]{0,5}} \sqrt{8}}_y + \underbrace{\log_{\sqrt[3]{100}} \sqrt[6]{0,1}}_z$$

$$\rightarrow \log_{\sqrt[3]{9}} \sqrt{\frac{1}{27}} = x \rightarrow (\sqrt[3]{9})^x = \sqrt{\frac{1}{27}} \rightarrow 9^{\frac{x}{3}} = \left(\frac{1}{27}\right)^{\frac{1}{2}} \rightarrow$$

$$(3^2)^{\frac{x}{3}} = \left(\frac{1}{3^3}\right)^{\frac{1}{2}} \rightarrow 3^{\frac{2x}{3}} = (3^{-3})^{\frac{1}{2}} \rightarrow 3^{\frac{2x}{3}} = 3^{-\frac{3}{2}}$$

$$\frac{2x}{3} = -\frac{3}{2} \rightarrow 4x = -9 \rightarrow x = -\frac{9}{4}$$

$$\log_{\sqrt[3]{0,5}} \sqrt{8} = y \rightarrow (\sqrt[3]{0,5})^y = \sqrt{8} \rightarrow 0,5^{\frac{y}{3}} = 8^{\frac{1}{2}} \rightarrow$$

$$\left(\frac{1}{2}\right)^{\frac{y}{3}} = (2^3)^{\frac{1}{2}} \rightarrow \left(\frac{1}{2}\right)^{\frac{y}{3}} = 2^{\frac{3}{2}} \rightarrow \left(\frac{1}{2}\right)^{\frac{y}{3}} = \left(\frac{1}{2}\right)^{-\frac{3}{2}} \rightarrow$$

$$\frac{y}{3} = -\frac{3}{2} \rightarrow 2y = -9 \rightarrow y = -\frac{9}{2}$$