Tarea 3 resuelta.

Simplificar las siguientes raíces:

1. $\sqrt{128} = \sqrt{8x8x2} = \sqrt{8^2} \cdot \sqrt{2} = 8\sqrt{2}$
2. $\sqrt[3]{3} \cdot \sqrt[3]{9} = \sqrt[3]{3 \cdot 9} = \sqrt[3]{27} = 3$
3. $\frac{\sqrt{8}}{\sqrt{2}} = \sqrt{\frac{8}{2}} = \sqrt{4} = 2$
4. $\left(\frac{\cancel{\sqrt{11}}}{\sqrt{2}}\right)\left(\frac{\sqrt[3]{16}}{\cancel{\sqrt{11}}}\right) = \sqrt[3]{\frac{16}{2}} = \sqrt[3]{8} = 2$

Racionaliza y simplifica a su mínima expresión.

$$\frac{90}{\sqrt{10}} = \left(\frac{90}{\sqrt{10}}\right)\left(\frac{\sqrt{10}}{\sqrt{10}}\right) = \frac{90\sqrt{10}}{10} = 9\sqrt{10}$$

$$\frac{1}{\sqrt[3]{9}} = \left(\frac{1}{\sqrt[3]{9}}\right)\left(\frac{\sqrt[3]{9^2}}{\sqrt[3]{9^2}}\right) = \frac{\sqrt[3]{9^2}}{9^{\frac{1}{3}} \cdot 9^{\frac{2}{3}}} = \frac{\sqrt[3]{9^2}}{9^{\frac{1}{3}+\frac{2}{3}}} = \frac{\sqrt[3]{81}}{9} = \frac{\sqrt[3]{27x3}}{9} = \frac{\sqrt[3]{3^3x3}}{9}$$

$$= \frac{\sqrt[3]{3^3}\,\sqrt[3]{3}}{9} = \frac{3\sqrt[3]{3}}{9} = \quad \therefore \frac{\sqrt[3]{\mathbf{3}}}{\mathbf{3}}$$

$$\frac{\sqrt{8}}{\sqrt{4}-\sqrt{2}} = \left(\frac{\sqrt{8}}{\sqrt{4}-\sqrt{2}}\right)\left(\frac{\sqrt{4}+\sqrt{2}}{\sqrt{4}+\sqrt{2}}\right) = \frac{\sqrt{8}\left(2+\sqrt{2}\right)}{\left(\sqrt{4}\right)^2 - \left(\sqrt{2}\right)^2}$$

$$= \frac{2\sqrt{8} + \sqrt{8}\sqrt{2}}{4-2} = \frac{2\sqrt{4x2} + \sqrt{4x2}\sqrt{2}}{2} = \frac{2\sqrt{4}\sqrt{2} + \sqrt{4}\sqrt{2}\sqrt{2}}{2}$$

$$= \frac{2 \cdot 2\sqrt{2} + 2 \cdot 2}{2} = \frac{2\left(2\sqrt{2}+2\right)}{2} = \quad \therefore \mathbf{2\sqrt{2}+2}$$

Realiza las siguientes operaciones y simplifica.

$$\left(3\sqrt{3}+2\sqrt[4]{2}-4\sqrt[3]{8}\right)-\left[\sqrt{3}-\left(5\sqrt[3]{8}-\sqrt{3}+\sqrt[4]{2}\right)\right]=$$

$$=\left(3\sqrt{3}+2\sqrt[4]{2}-4\sqrt[3]{8}\right)-\left[\sqrt{3}-5\sqrt[3]{8}+\sqrt{3}-\sqrt[4]{2}\right]$$

$$=\left(3\sqrt{3}+2\sqrt[4]{2}-4\sqrt[3]{8}\right)-\sqrt{3}+5\sqrt[3]{8}-\sqrt{3}+\sqrt[4]{2}$$

$$=3\sqrt{3}+2\sqrt[4]{2}-4\sqrt[3]{8}-\sqrt{3}+5\sqrt[3]{8}-\sqrt{3}+\sqrt[4]{2}$$

$$=(3-2)\sqrt{3}+(2+1)\sqrt[4]{2}+(-4+5)\sqrt[3]{8}$$

$$=\boldsymbol{\sqrt{3}+3\sqrt[4]{2}+\sqrt[3]{8}}$$

$$\frac{\sqrt{5}}{\sqrt{2}}+\frac{\sqrt{5}}{\sqrt{8}}=\frac{\sqrt{8}\sqrt{5}+\sqrt{2}\sqrt{5}}{\sqrt{2}\sqrt{8}}=\frac{\sqrt{8x5}+\sqrt{2x5}}{\sqrt{2x8}}=\frac{\sqrt{40}+\sqrt{10}}{\sqrt{16}}$$

$$=\frac{\sqrt{2^2x10}+\sqrt{10}}{4}=\frac{2\sqrt{10}+\sqrt{10}}{4}=\quad\therefore\ \boldsymbol{\frac{3\sqrt{10}}{4}}$$

Convierte a su forma exponencial o logarítmica según corresponda.

1. $25^2=625 \leftrightarrow log_{25}625=2$
2. $log_9 81=2 \leftrightarrow 9^2=81$
3. $log_{\frac{1}{7}}343=-3 \leftrightarrow \left(\frac{1}{7}\right)^{-3}=7^3=343$