

The background features a dark purple grid pattern. Overlaid on this are several thick, diagonal lines in various colors: yellow, orange, red, purple, green, and dark blue. The word 'MATEMÁTICA' is written in white, bold, uppercase letters, slanted to follow the path of one of the yellow lines.

MATEMÁTICA

AGORA É COM VOCÊ!

Usando as propriedades dos radicais,
simplifique:

$$\begin{aligned} \sqrt[4]{2^4 \cdot 5^8} &= \\ \sqrt[4]{2^4} \cdot \sqrt[4]{5^4} \cdot \sqrt[4]{5^4} &= \\ 2 \cdot 5 \cdot 5 &= 50 \end{aligned} \quad \left| \quad \begin{aligned} \sqrt{\frac{81}{4}} &= \frac{\sqrt{81}}{\sqrt{4}} \\ &= \frac{9}{2} \end{aligned} \right.$$

PROPRIEDADES DOS RADICAIS: SIMPLIFICANDO RADICAIS

$$\begin{array}{l} \sqrt{50} = \\ = \sqrt{2} \cdot \sqrt{5^2} \\ = 5\sqrt{2} \end{array} \quad \left| \quad \begin{array}{l} \sqrt{18} = \\ = \sqrt{2} \cdot \sqrt{3^2} \\ = 3\sqrt{2} \end{array} \right.$$

Radicais SEMELHANTES: mesmo radical

$$\begin{aligned}\sqrt{1200} &= \sqrt{12 \times 100} = \sqrt{12} \times \sqrt{100} \\ &= \sqrt{2^2 \times 3} \times \sqrt{10^2} \\ &= \sqrt{2^2} \times \sqrt{3} \times \sqrt{10^2} \\ &= 2 \cdot 10 \cdot \sqrt{3} \\ &= 20\sqrt{3}\end{aligned}$$

$$\begin{aligned}\sqrt[3]{27x^6y^3} &= \sqrt[3]{27} \cdot \sqrt[3]{x^6} \cdot \sqrt[3]{y^3} \\ &= \sqrt[3]{3^3} \cdot \sqrt[3]{x^6} \cdot \sqrt[3]{y^3} \\ &= \sqrt[3]{3^3} \cdot \sqrt[3]{x^3} \cdot \sqrt[3]{x^3} \cdot \sqrt[3]{y^3} \\ &= 3x^2y\end{aligned}$$

$$\sqrt[3]{\frac{625}{64}} = \frac{\sqrt[3]{625}}{\sqrt[3]{64}} = \frac{\sqrt[3]{5^3 \cdot 5}}{\sqrt[3]{2^6}} =$$

$$\frac{\cancel{\sqrt[3]{5^3}} \cdot \sqrt[3]{5}}{\sqrt[3]{2^6}} = \frac{5\sqrt[3]{5}}{2^{\frac{6}{3}}} = \frac{5\sqrt[3]{5}}{2^2} = \frac{5\sqrt[3]{5}}{4}$$

Introduzir fatores externos no radicando.

Observe...

$$\sqrt{20} = \sqrt{2^2} \cdot \sqrt{5} = 2\sqrt{5}$$

Fazendo o caminho inverso...

$$2\sqrt{5} = \sqrt{2^2 \cdot 5} = \sqrt{20}$$

$$2^3 \sqrt[3]{2} = \sqrt[3]{2^3 \cdot 2} = \sqrt[3]{8 \cdot 2} = \sqrt[3]{16}$$

$$\begin{aligned} 3x \sqrt[3]{x} &= \sqrt[3]{3^3 \cdot x^3 \cdot x} = \sqrt[3]{27 \cdot x^{3+1}} \\ &= \sqrt[3]{27x^4} \end{aligned}$$