



Simplificando os expoentes de fração (divisão)

Nome: _____

Encontro: Data: _____ Pontuação: _____

$$\frac{\left(\frac{4}{9}\right)^3 \cdot \left(\frac{4}{9}\right)^7 \cdot \left(\frac{4}{9}\right)^{-10} \cdot \left(\frac{4}{9}\right)^5}{\left(\frac{4}{9}\right)^{11} \cdot \left(\frac{4}{9}\right)}$$

$$\frac{\left(\frac{4}{9}\right)^{-1} \cdot \left(\frac{4}{9}\right)^{-5} \cdot \left(\frac{4}{9}\right)^3}{\left(\frac{4}{9}\right)^{-1}}$$

$$\left(\frac{2}{5}\right)^2 \cdot \left(\frac{2}{5}\right) \cdot \left(\frac{2}{5}\right)^8$$

$$\left(\frac{1}{5}\right)^9 \cdot \left(\frac{1}{5}\right)^{-5} \cdot \left(\frac{1}{5}\right)^8$$

$$\left(\frac{1}{7}\right)^{-4} \cdot \left(\frac{1}{7}\right)^{-1} \cdot \left(\frac{1}{7}\right)^{-7}$$

$$\frac{\left(\frac{3}{8}\right)^{-10} \cdot \left(\frac{3}{8}\right)^{11} \cdot \left(\frac{3}{8}\right)^{-7} \cdot \left(\frac{3}{8}\right)^{-10}}{\left(\frac{3}{8}\right)^{-6} \cdot \left(\frac{3}{8}\right)^7}$$

$$\left(\frac{2}{9}\right)^{-3} \cdot \left(\frac{2}{9}\right)^3 \cdot \left(\frac{2}{9}\right)^6$$

$$\frac{\left(\frac{1}{4}\right)^{-9} \cdot \left(\frac{1}{4}\right) \cdot \left(\frac{1}{4}\right)^{-2}}{\left(\frac{1}{4}\right)^{-2}}$$

$$\frac{\left(\frac{2}{9}\right)^{-7} \cdot \left(\frac{2}{9}\right)^{-8} \cdot \left(\frac{2}{9}\right)^{-3}}{\left(\frac{2}{9}\right)^{-6}}$$

$$\left(\frac{1}{7}\right)^{-3} \cdot \left(\frac{1}{7}\right)^{-10} \cdot \left(\frac{1}{7}\right)^9$$

$$\frac{\left(\frac{1}{2}\right)^{-4} \cdot \left(\frac{1}{2}\right)^{-4} \cdot \left(\frac{1}{2}\right)^{-5}}{\left(\frac{1}{2}\right)^9}$$

$$\frac{\left(\frac{1}{7}\right)^{-3} \cdot \left(\frac{1}{7}\right)^{10} \cdot \left(\frac{1}{7}\right)^{-8} \cdot \left(\frac{1}{7}\right)}{\left(\frac{1}{7}\right)^{-8} \cdot \left(\frac{1}{7}\right)^4}$$

$$\frac{\left(\frac{2}{5}\right)^4 \cdot \left(\frac{2}{5}\right)^9 \cdot \left(\frac{2}{5}\right)^7 \cdot \left(\frac{2}{5}\right)^{-6}}{\left(\frac{2}{5}\right)^{-6} \cdot \left(\frac{2}{5}\right)^{-3}}$$

$$\frac{\left(\frac{3}{7}\right)^3 \cdot \left(\frac{3}{7}\right)^{11} \cdot \left(\frac{3}{7}\right)^4 \cdot \left(\frac{3}{7}\right)^{-1}}{\left(\frac{3}{7}\right)^5 \cdot \left(\frac{3}{7}\right)^6}$$

$$\frac{\left(\frac{2}{7}\right)^{-10} \cdot \left(\frac{2}{7}\right)^{-10} \cdot \left(\frac{2}{7}\right)^4 \cdot \left(\frac{2}{7}\right)^{-8}}{\left(\frac{2}{7}\right)^9 \cdot \left(\frac{2}{7}\right)^{-9}}$$



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$$\frac{\left(\frac{4}{9}\right)^3 \cdot \left(\frac{4}{9}\right)^7 \cdot \left(\frac{4}{9}\right)^{-10} \cdot \left(\frac{4}{9}\right)^5}{\left(\frac{4}{9}\right)^{11} \cdot \left(\frac{4}{9}\right)} \quad \left(\frac{4}{9}\right)^{-7}$$

$$\frac{\left(\frac{4}{9}\right)^{-1} \cdot \left(\frac{4}{9}\right)^{-5} \cdot \left(\frac{4}{9}\right)^3}{\left(\frac{4}{9}\right)^{-1}} \quad \left(\frac{4}{9}\right)^{-2}$$

$$\left(\frac{2}{5}\right)^2 \cdot \left(\frac{2}{5}\right) \cdot \left(\frac{2}{5}\right)^8 \quad \left(\frac{2}{5}\right)^{11}$$

$$\left(\frac{1}{5}\right)^9 \cdot \left(\frac{1}{5}\right)^{-5} \cdot \left(\frac{1}{5}\right)^8 \quad \left(\frac{1}{5}\right)^{12}$$

$$\left(\frac{1}{7}\right)^{-4} \cdot \left(\frac{1}{7}\right)^{-1} \cdot \left(\frac{1}{7}\right)^{-7} \quad \left(\frac{1}{7}\right)^{-12}$$

$$\frac{\left(\frac{3}{8}\right)^{-10} \cdot \left(\frac{3}{8}\right)^{11} \cdot \left(\frac{3}{8}\right)^{-7} \cdot \left(\frac{3}{8}\right)^{-10}}{\left(\frac{3}{8}\right)^{-6} \cdot \left(\frac{3}{8}\right)^7} \quad \left(\frac{3}{8}\right)^{-17}$$

$$\left(\frac{2}{9}\right)^{-3} \cdot \left(\frac{2}{9}\right)^3 \cdot \left(\frac{2}{9}\right)^6 \quad \left(\frac{2}{9}\right)^6$$

$$\frac{\left(\frac{1}{4}\right)^{-9} \cdot \left(\frac{1}{4}\right) \cdot \left(\frac{1}{4}\right)^{-2}}{\left(\frac{1}{4}\right)^{-2}} \quad \left(\frac{1}{4}\right)^{-8}$$

$$\frac{\left(\frac{2}{9}\right)^{-7} \cdot \left(\frac{2}{9}\right)^{-8} \cdot \left(\frac{2}{9}\right)^{-3}}{\left(\frac{2}{9}\right)^{-6}} \quad \left(\frac{2}{9}\right)^{-12}$$

$$\left(\frac{1}{7}\right)^{-3} \cdot \left(\frac{1}{7}\right)^{-10} \cdot \left(\frac{1}{7}\right)^9 \quad \left(\frac{1}{7}\right)^{-4}$$

$$\frac{\left(\frac{1}{2}\right)^{-4} \cdot \left(\frac{1}{2}\right)^{-4} \cdot \left(\frac{1}{2}\right)^{-5}}{\left(\frac{1}{2}\right)^9} \quad \left(\frac{1}{2}\right)^{-22}$$

$$\frac{\left(\frac{1}{7}\right)^{-3} \cdot \left(\frac{1}{7}\right)^{10} \cdot \left(\frac{1}{7}\right)^{-8} \cdot \left(\frac{1}{7}\right)}{\left(\frac{1}{7}\right)^{-8} \cdot \left(\frac{1}{7}\right)^4} \quad \left(\frac{1}{7}\right)^4$$

$$\frac{\left(\frac{2}{5}\right)^4 \cdot \left(\frac{2}{5}\right)^9 \cdot \left(\frac{2}{5}\right)^7 \cdot \left(\frac{2}{5}\right)^{-6}}{\left(\frac{2}{5}\right)^{-6} \cdot \left(\frac{2}{5}\right)^{-3}} \quad \left(\frac{2}{5}\right)^{23}$$

$$\frac{\left(\frac{3}{7}\right)^3 \cdot \left(\frac{3}{7}\right)^{11} \cdot \left(\frac{3}{7}\right)^4 \cdot \left(\frac{3}{7}\right)^{-1}}{\left(\frac{3}{7}\right)^5 \cdot \left(\frac{3}{7}\right)^6} \quad \left(\frac{3}{7}\right)^6$$

$$\frac{\left(\frac{2}{7}\right)^{-10} \cdot \left(\frac{2}{7}\right)^{-10} \cdot \left(\frac{2}{7}\right)^4 \cdot \left(\frac{2}{7}\right)^{-8}}{\left(\frac{2}{7}\right)^9 \cdot \left(\frac{2}{7}\right)^{-9}} \quad \left(\frac{2}{7}\right)^{-24}$$