

Exercise 1

Use the Law of Exponents to rewrite and simplify the expression.

$$(a) \quad \frac{4^{-3}}{2^{-8}} \qquad (b) \quad \frac{1}{\sqrt[3]{x^4}}$$

Solution**Part (a)**

$$\begin{aligned} \frac{4^{-3}}{2^{-8}} &= \frac{(2^2)^{-3}}{2^{-8}} \\ &= \frac{2^{2(-3)}}{2^{-8}} \\ &= \frac{2^{-6}}{2^{-8}} \\ &= 2^{-6-(-8)} \\ &= 2^2 \\ &= 4 \end{aligned}$$

Part (b)

$$\begin{aligned} \frac{1}{\sqrt[3]{x^4}} &= \frac{1}{x^{4/3}} \\ &= x^{-4/3} \end{aligned}$$