

UNIDAD 1: Números Reales

3. Potencias de fracciones. Exponente entero.

(A) $a^{-n} = \frac{1}{a^n}$

- $2^{-3} = \frac{1}{2^3} = \frac{1}{8}$
- $3^{-1} = \frac{1}{3^1} = \frac{1}{3}$

(B) $\left(\frac{a}{b}\right)^{-n} = \left(\frac{b}{a}\right)^n = \frac{b^n}{a^n}$

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

Ejemplos.

- $3^{-4} : 3^{-3} \cdot 3^{-2} = 3^{-1} \cdot 3^{-2} = 3^{-3} = \frac{1}{3^3} = \frac{1}{27}$
- $2^{-3} \cdot 5^{-3} : \left(\frac{1}{2}\right)^3 = 10^{-3} : \left(\frac{1}{2}\right)^3 = \left(\frac{1}{10}\right)^3 : \left(\frac{1}{2}\right)^3 = \left(\frac{2}{10}\right)^3 =$
 $= \left(\frac{1}{5}\right)^3 = \frac{1}{125}$
- $\frac{(3^2)^{-3}}{9^{-4}} = \frac{3^{-6}}{(3^2)^{-4}} = \frac{3^{-6}}{3^{-8}} = 3^2 = 9$
- $\frac{9^3 \cdot 4^2}{27^2 \cdot 2^5} = \frac{(3^2)^3 \cdot (2^2)^2}{(3^3)^2 \cdot 2^5} = \frac{3^6 \cdot 2^4}{3^6 \cdot 2^5} = \frac{1}{2}$
- $\frac{9^2 \cdot 3 \cdot 6^{-2}}{4^{-1} \cdot 2^3} = \frac{9^2 \cdot 3 \cdot 4^1}{6^2 \cdot 2^3} = \frac{(3^2)^2 \cdot 3 \cdot 2^2}{(2 \cdot 3)^2 \cdot 2^3} = \frac{3^4 \cdot 3 \cdot 2^2}{2^2 \cdot 3^2 \cdot 2^3} = \frac{3^5 \cdot 2^2}{3^2 \cdot 2^5} = \frac{3^3}{2^3} = \frac{27}{8}$