



Propiedades de los Exponentes

- 1)  $a^n \cdot a^m = a^{n+m}$
- 2)  $\frac{a^n}{a^m} = a^{n-m}$  ; si  $n > m$   
 $\frac{a^n}{a^m} = \frac{1}{a^{m-n}}$  ; si  $m > n$

3)  $a^0 = 1$ ,  $0^0$  es una forma indeterminada

- 4)  $a^{-n} = \frac{1}{a^n}$        $\frac{1}{a^{-n}} = a^n$
- 5)  $(a^n)^m = a^{n \cdot m}$
- 6)  $(a^n \cdot b^k)^m = a^{n \cdot m} \cdot b^{k \cdot m}$
- 7)  $\left(\frac{a}{b}\right)^n = \frac{a^n}{b^n}$

Ejercicios de Práctica

- 1)  $\frac{12x^{-4}}{14x^5y^{-2}} = \frac{\cancel{12} y^2}{\cancel{14} x^5 x^4} = \frac{6 y^2}{7 x^9}$
- 2)  $\left(\frac{4x^{-2}y^3}{2xy^{-2}}\right)^{-2} = \frac{4^{-2}x^4 y^{-6}}{2^{-2}x^{-2}y^4} = \frac{2^2 x^4 x^2}{4^2 y^4 y^6} = \frac{\cancel{4} x^6}{\cancel{16} y^{10}} = \frac{x^6}{4y^{10}}$
- 3)  $(2x^{-3}y^2)^{-3} = 2^3 x^{-9} y^6 = \frac{2^3 y^6}{x^9} = \frac{8y^6}{x^9}$

$$4) \left( \frac{x^{-2}}{x^3} \right)^5 = \frac{x^{-10}}{x^{15}} = \frac{1}{x^{10} x^{15}} = \boxed{\frac{1}{x^{25}}}$$



$$5) \left( \frac{x^3 y^{-2}}{x^{-2} y^3} \right)^{-3} = \frac{x^{-9} y^6}{x^6 y^{-9}} = \frac{y^6 y^9}{x^9 x^6} = \boxed{\frac{y^{15}}{x^{15}}}$$

$$6) (3a^5)^{-2} = 3^{-2} a^{-10} = \frac{1}{3^2 a^{10}} = \boxed{\frac{1}{9 a^{10}}}$$



$$7) \left( \frac{2d^8}{c^{-4}} \right)^{-3} = \frac{2^{-3} d^{-24}}{c^{12}} = \frac{1}{2^3 d^{24} c^{12}} = \boxed{\frac{1}{8 d^{24} c^{12}}}$$



$$8) \left( \frac{3x^{-6}}{4y^4} \right)^{-2} = \frac{3^{-2} x^{12}}{4^{-2} y^{-8}} = \frac{4^2 x^{12} y^8}{3^2} = \boxed{\frac{16 x^{12} y^8}{9}}$$

$$9) \left( \frac{5x^3 x^2}{x^{-6}} \right)^{-2} = \frac{5^{-2} x^{-6} x^{-4}}{x^{12}} = \frac{1}{5^2 x^6 x^4 x^{12}} = \boxed{\frac{1}{25 x^{22}}}$$

