Properties of Exponents

$a^0 = 1$	**for any number a, except a = 0. 0^0 is undefined!**
$a^m \cdot a^n = a^{m+n}$	**To multiply like bases, add exponents.**
$\frac{a^m}{a^n} = a^{m-n}$	**To divide like bases, subtract exponents.**
$(a^m)^n = a^{mn}$	**To raise a power to a power, multiply exponents.**
$a^{-n} = \frac{1}{a^n}$	**A negative exponent means to take the *or* reciprocal (NOT to make a negative number!)**
$a^n = \frac{1}{a^{-n}}$	

Examples

$1^0 = 1$, $2^0 = 1$, $(-3)^0 = 1$, $10^0 = 1$, $(-2345)^0 = 1$, $(.78)^0 = 1$
$(-13.75013)^0 = 1$. 0^0 is not allowed!

$2^3 \cdot 2^4 = 8 \cdot 16 = 128 = 2^7$, $(.3)^2 \cdot (.3)^3 = (.3)^5 = .00243$

$\frac{2^5}{2^2} = \frac{32}{4} = 8 = 2^3$ $\qquad$ $(3^2)^3 = 3^6 = 729$

$5^{-3} = \frac{1}{5^3} = \frac{1}{125}$ (NOT a negative number!)

$-2^{-2} = -\frac{1}{4}$ $\qquad$ $(-3)^{-2} \cdot (-3)^3 = (-3)^1 = -3$