Algebra 2 // Exponents

$1^2 = 1$
$2^2 = 4$
$3^2 = 9$
$4^2 = 16$
$5^2 = 25$
$6^2 = 36$
$7^2 = 49$
$8^2 = 64$
$9^2 = 81$
$10^2 = 100$
$11^2 = 121$
$12^2 = 144$

$1^3 = 1$
$2^3 = 8$
$3^3 = 27$
$4^3 = 64$
$5^3 = 125$
$6^3 = 216$
$7^3 = 343$
$8^3 = 512$
$9^3 = 729$
$10^3 = 1000$

$1^4 = 1$
$2^4 = 16$
$3^4 = 81$
$4^4 = 256$
$5^4 = 625$

1. $x^a \cdot x^b = x^{a+b}$

↳ $(2x^5)(3xy) = 6x^6y$ $\quad (7x^3y)(4x^2y^3) = 28x^5y^4$

2. $x^a / x^b = x^{a-b}$

↳ $\frac{4x^3}{8x^2} = \frac{1}{2}x^{3-2} = \frac{1}{2}x$ $\quad \frac{20x^6y^4}{5x^2y^3} = 4x^4y^1$

3. $(x^a)^b = x^{a \cdot b}$

↳ $(3x^3y^5)^2 = 9x^6y^{10}$ $\quad (4x^4y^2)^3 = 64x^{12}y^6$

4. $(xy)^a = x^a y^a$

↳ $(2xy)^3 = 8x^3y^3$

5. $(x/y)^a = x^a/y^a$

↳ $\left(\frac{2}{x}\right)^4 = \frac{16}{x^4}$

6. $x^{-a} = 1/x^a$

↳ $4^{-2} = \frac{1}{4^2} = \frac{1}{16}$ $\quad x^{-3} = \frac{1}{x^3}$

7. $x^0 = 1$

↳ $47^0 = 1$ $\quad 239^0 = 1$