

The Power of a Power Rule

8th Grade

A power raised to a power? Multiply the exponents.

When a power is raised to another power, keep the base and multiply the exponents.

$$(a^m)^n = a^{mn}$$

$$(x^3)^2$$

$$x^6$$

$x^3 \times x^3$ — three plus three.

$$(2^3)^4$$

$$2^{12} = 4096$$

$3 \times 4 = 12$.

$$(3x^2)^3$$

$$27x^6$$

The 3 gets cubed too.

$$(x^2y^3)^4$$

$$x^8y^{12}$$

Every factor inside gets the outside power.

THE COMMON MISTAKE

$$\times (3x^2)^3 = 3x^6$$

$$\checkmark (3x^2)^3 = 27x^6$$

The coefficient is inside the bracket, so it is cubed as well.

**Multiplying powers adds exponents. Raising a power multiplies them.
Read the brackets carefully.**