

Power Raised to a Power

Explain and apply the exponent laws for powers with intergal exponents:

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

A Power Raised to a Power

When you have a power raised to another power, then you multiply the exponents together.

$$\begin{aligned}(2^4)^3 &= (2^4)(2^4)(2^4) \\ &= 2^{4+4+4} \\ &= 2^{12}\end{aligned}$$

Examples:

$$\begin{aligned}(y^2)^3 &= (y^2)(y^2)(y^2) \\ &= y^{2+2+2} \\ &= y^6\end{aligned}$$

$$\begin{aligned}(y^3)^4 &= y^{(3)(4)} \\ &= y^8\end{aligned}$$

$$\begin{aligned}(3^5)^2 &= 3^{(5)(2)} \\ &= 3^{10} \\ &= 59\,049\end{aligned}$$

$$(4^2)^n = 4^{10}$$

Q.1

What is the value of n in the above equation?

A 8	C 4
B 10	D 5

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$$(x^{-2})^n = x^{-6}$$

Q.1

What is the value of n in the above equation?

A C

B D

$$(y^2)^3 = y^n$$

Q.1

What is the value of n in the above equation?

A C

B D

Simplify the following.

$$(z^2)^3 \times (z^4)^2$$

$$(n^{-5} \times n^{13})^{-4}$$

Pull

Pull

Again, we can combine exponent rules.

$$\frac{(x^2)^3}{x^4}$$

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Simplify the following.

$$\frac{(a^2)^2(b^3)^3}{a^2b^2}$$

$$\frac{(2x^2)^3y^2}{4xy}$$

Pull

Pull

Simplify the following.

$$(8^5 \times 3^4)^3$$

$$(a^{-4}b^{-2})^{-3}$$

Pull

Pull

Attachments

Power to a Power.doc

Exponent Rules 2.doc

Exponent Rules 3.doc