

Lesson 5-9 Powers of Products and Quotients

Mr. Marroquin's 7th Grade Pre-Algebra Class

Review: Raising a power to a power (3)

- $(4)^3 =$ _____

- $(x^2)^2 =$ _____

- $(r^6)^3 =$ _____

Raising a product to a power

- But what if we have an additional factor other than one inside the parenthesis? (4)
 - $(2 \times 4)^2 \rightarrow$ expand it w/o finding the product
 - Rewrite: _____
 - What did we really do? _____
 - Can we simplify? Yes / No
 - Yes: When we are dealing with numbers we can write what each power actually is.

How would raising a product to a power look like in Algebra?

- $(ab)^m = \underline{\hspace{2cm}}$
- What are we doing?
 - Raising each factor to a power of $\underline{\hspace{1cm}}$
 - m must be a positive integer

Example (3)

- $(2p)^4 = \underline{\hspace{2cm}}$
- $(xy^2)^5 = \underline{\hspace{2cm}}$
- $(-5x^3)^3 = \underline{\hspace{2cm}}$

- Steps:
 - Raise each factor
 - Use rules of raising a power to a power
 - Simplify

Raising a quotient to a power (4)

- $(\frac{1}{2})_4$
- Expands to $\rightarrow \underline{\hspace{2cm}}$
- What did we really do ?
 - Raised the divisor and the dividend to a power of $\underline{\hspace{1cm}}$?

Raising quotients in Algebra?

$$\left(\frac{a}{b}\right)^m =$$

- Only true when $a \neq 0$ and m is a positive integer

Examples (3)

$$\bullet \left(\frac{1}{2}\right)^3$$

$$\bullet \left(\frac{2}{x^2}\right)^4$$

$$\bullet \left(\frac{2x^2}{3}\right)^3$$

Assignment

- PB 5-9
- HW: Page 267 16-54 even
