

Math 9

- Today:
 - > Quiz on powers and exponents
- This week:
 - > You will be working on a specific task from today, until Thursday.
 - you will get your task number from the list posted in the back.
 - It is posted by your code number.
 - > Today, we have mini-lessons # 1 (Exponent laws I)
 - > Tuesday, we have mini-lesson #2 (Exponent laws II)
 - > On Friday, March 23, there will be a **Test** on Exponents!
- Please take a look at your specific task rubric so that you are fully aware of what is expected of you this week.
- Also, remember that **extra help is on Wednesday's at lunch time.**

Sep 15-10:02 PM

Oct. 7, 2014

Mar. 19, 2018

Mini Lesson #1 Exponent Laws I TASK # 2 & 3

Oct 15-10:25 PM

Section 2.4 Exponent Laws I

Oct 19-9:13 PM

Example 1

Write each expression as a power.

a) $6^5 \times 6^4$

$6^5 \times 6^4$

1. Expand
2. Write as a single power

$(6 \times 6 \times 6 \times 6 \times 6) \times (6 \times 6 \times 6 \times 6)$

a) $6^5 \times 6^4 = 6^9$

$2^5 \times 2^{12} = 2^{5+12}$
 $= 2^{17}$

What do you notice???

When it is expanded, then simplified, it would be the same as adding the exponents! So, it would make questions simpler to just add exponents, and then evaluate if necessary.

Exponent Law #1: Power of a Product

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

***This law will ONLY work when multiplying and the bases are the same!!!!

$2^2 \cdot 3^1 = (2 \times 2) \cdot (3)$
 $4 \cdot 3 = 12$

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Example #2:

b) $(-9)^{10} \div (-9)^6$ $(-9)^{10} \div (-9)^6$

1. Expand
2. Divide and Cancel common factors
3. Write as a single power

$$\frac{(-9)(-9)(-9)(-9)(-9)(-9)(-9)(-9)(-9)(-9)}{(-9)(-9)(-9)(-9)(-9)(-9)}$$

Only four (-9) are left, which simplifies to $(-9)^4$

b) $(-9)^{10} \div (-9)^6 = (-9)^4 = (-9)^{10-6}$

What do you notice???

When the expression is expanded, then simplified, it would be the same and simpler to have just subtracted the exponents.

Exponent Law #2: Quotient of a Power

$$a^m \div a^n = a^{m-n}$$

***This law will ONLY work when dividing and the bases are the same!!!!

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Exponent Laws

(only works when the bases are the same)

1. Exponent Law #1: Power of a Product

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

(when multiplying powers with the same bases)

Example: $3^5 \times 3^2 = 3^{5+2} = 3^7$
2. Exponent Law #2: Quotient of a Power

$$a^m \div a^n = a^{m-n}$$

(when dividing powers with the same bases)

Example: $(-4)^7 \div (-4)^5 = (-4)^{7-5} = (-4)^2$

Nov 1-11:03 AM

Order of Operations with Powers

Example #3 Write as a single power: notes

$$5^4 \times 5^3 \div 5^2 = 5^{4+3-2} = 5^5$$

Example #4 (Evaluate)

BEDMAS

$$-2^4 (2^6 - 2^2) - 2^4$$

$$(-2)^4 = + -$$

$$-2^4 (2^4) - 2^4$$

$$-2^4 = - -$$

$$-2^8 - 2^4$$

$$-256 - 16$$

$$-272$$

Nov 1-11:29 AM

e) $(-2)^4 [(-2)^5 \div (-2)^3] + (-2)^4$

Oct 18-11:45 AM