Grade 9 Warm Up

Get those brain muscles pumping!!!

Without your calculators evaluate the following expressions:

$$\left[-(-2)^3-(4)^3\right]^2-6^3\div(-2)^2+5(-3)^2\div 15$$

$$\left[-(-8)-(-64)\right]^2-216\div 4+5(9)\div 15$$

$$\left[8+64\right]^2-54+3$$

$$\left[72\right]^2$$

$$5184-54+3$$

$$5133$$

Section 2.4 Exponent Laws 1

Write each expression as a product and then evaluate the following:

1) $3^2 \times 3^2$

$3 \times 3 \times 3 \times 3$

81

$= 3^4$

2) $2^2 \times 2^5$

$2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2$

128

$= 2^7$

Do you notice anything???

3) $(-5)^2 \times (-5)^4$

$(-5)(-5)(-5)(-5)(-5)(-5)$

15625 $(-5)^6$

Exponent Law for a Product of Powers


To multiply powers with the same base, add the exponents.

$$a^m \times a^n = a^{m+n}$$

must be the same base

The variable "a" is any interger, except 0.

The variable "m" and "n" are any whole numbers.


Write each of the following as a single power and then evaluate.

1) $7^2 \times 7^4$

7^6

117 649

2) $(-2)^5 \times (-2)^3$

$(-2)^8$

x^4 256

1

3) $4^5 \times 4^1$

4^6

4096

What happens when we divide powers with the same base?

1) $\frac{2^6}{2^2}$ $\frac{2\times2\times2\times2\times2\times2}{2\times2}$

$= 2^4$

$\frac{64}{4}$

16

8 2

4 2

2 2

2^4

Do you notice anything???

Exponent Law for a Quotient of Powers


To divide powers with the same base, subtract the exponents.

must be the same base

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


What happens when we divide powers with the same base?

2) $\frac{7^9}{7^4}$

7^5

16807

3) $\frac{(-5)^7}{(-5)^3}$

$(-5)^4$

625

pg 76, 77

, 4 a c e g h,
5 b d f h, 7, 8,
10 b d f h j

Attachments

Exponent Law 1 Review.pdf