Curriculum Outcome

(N1) Demonstrate an understanding of powers with integral bases (excluding base 0) and whole number exponents by: representing repeated multiplication using powers; using patterns to show that a power with an exponent of zero is equal to one; solving problems involving powers.

(N2) Demonstrate an understanding of operations on powers with integral bases (excluding base 0) and whole number exponents.

Student Friendly:

<u>Exponent Law for a</u>
<u>Quotient of Powers</u>



Get those brain muscles pumping!!!

Use BEDMAS to evaluate the following expressions:

$$\begin{bmatrix} -(-2)^3 - (4)^3 \end{bmatrix}^2 - 6^3 \div (-2)^2 + 5(-3)^3 \div 15$$

$$\begin{bmatrix} +(+8) + (+64) \end{bmatrix}^2$$

$$\begin{bmatrix} 8 + 64 \end{bmatrix}^2 - 6^3 \div (-2)^2 + 5(-3)^3 \div 15$$

$$5184 - 216 \div (4) + 5(-3)^3 \div 15$$

$$5184 - 54 + 45 \div 15$$

$$5184 - 54 + 3$$

$$= 5133$$





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

$$=(3)^4$$





Do you notice anything???

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

$$(-5)(-5)(-5)(-5) = (-5)^{+}$$

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





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

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

2)
$$(-2)^5$$
 x $(-2)^3$

3)
$$4^5 \times 4^{\circ}$$

$$= 117649$$

What happens when we divide powers with the same base?

$$\frac{2^6}{2^2} = \frac{(\cancel{\cancel{x}}\cancel{\cancel{(a)}}\cancel{\cancel{$$

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)
$$\frac{7^9}{7^4} = 7^5$$

= 16 807

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

= $(5)^4$

_ 625

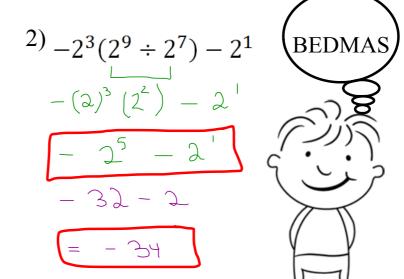


Remember to always use BEDMAS when evaluating

Simplify first (using exponent law I) THEN Evaluate each of the

following:

1)
$$3^{10} \div 3^6 + 3^2$$
 $3^4 + 3^2$
 $3^6 + 3^2$
 $3^6 + 3^2$
 $3^6 + 3^2$
 $3^6 + 3^2$
 $3^6 + 3^2$



3)
$$\frac{10^{1003}}{10^{1000}}$$

Laws

$$\chi^{\circ} = 1$$

$$\chi (\chi)^{\alpha} (\chi)^{b} = \chi^{\alpha + b}$$

$$\frac{3}{(\chi)^{c}} = \chi^{b-\alpha}$$



MUST COPY OUT QUESTION AND THEN ANSWER

Page 76 & 77
Questions:
3,4acegh, 5bdfh,7,8,10bdfhj

Exponent Law 1 Review.pdf