Mrs. van der Vossen

ponent "LAW"s

These "laws" aka "rules" but they are more like STORT - CUTS

When a value appears to have no exponent, it actually as an exponent equal to 0Ne. 5 = 5

RULE 1: When MULTIPLYING POWERS that

have the SAME BASE, Add the EXPONENTS

$$2^{3} \times 2^{2} = 2 \times 2 \times 2 = 2^{5}$$

$$(-3)^{3}(-3)^{2}(-3)^{2} =$$

$$5^{3} \times 5^{5} = \frac{8}{5}$$

QUOTIENT RULE

RULE 2: When DIVIDING POWERS that have

the SAME BASE, SUBTRACT the EXPONENTS

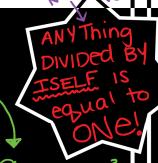
$$0^{3} \cdot 2^{2} = 2$$
 $2^{3} \cdot 2 \times 2 \times 2$

$$x^4 \div x^4 = x^4 = x^3$$

cancel to one

divide might be shown as a fraction

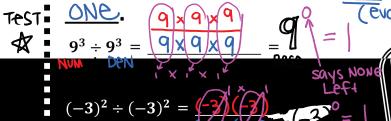
$$\frac{(-5)^4}{(-5)^3} = \frac{(-5)(-5)(-5)(-5)}{(-5)(-5)(-5)} = (-5)$$



ZERO EXPONENT RULE

RULE 3: When ANY BASE is raised to the power of 200, the value of the expression is (Evaluatea)

\$



says Nove Proved with repeated Left multiplication then div multiplication then division, because any number **DIVIDED by ITSELF equal**

$$y^5 \div y^5 = \frac{\cancel{y} \cancel{y} \cancel{y} \cancel{y}}{\cancel{y} \cancel{y} \cancel{y}} = \frac{\cancel{y} \cancel{y} \cancel{y} \cancel{y}}{\cancel{y} \cancel{y}} = \frac{\cancel{y} \cancel{y} \cancel{y} \cancel{y}}{\cancel{y}} = \frac{\cancel{y} \cancel{y} \cancel{y} \cancel{y}}{\cancel{y}} = \frac{\cancel{y} \cancel{y} \cancel{y}}{\cancel{y}} = \frac{\cancel{y} \cancel{y} \cancel{y}}{\cancel{y}} = \frac{\cancel{y} \cancel{y}}{\cancel{y}} = \frac{\cancel{y}}{\cancel{y}} = \frac{\cancel{y}}{\cancel$$

RULE 4: When raising a POWER to a POWER, MULTIPLY the EXPONENTS *the inside POWER is the BASE that will repeat the *the **Inside** POWER IS an OUTER EXPONENT says* 6 $(3^5)^2 = (3\cdot3\cdot3\cdot3\cdot3)(3\cdot3\cdot3\cdot3\cdot3) = 3^{5\times2} = 3^{10}$ RULE 5: When raising a Quotient (looks like a fraction but just shows DIVISION!) to a power, the numerator and denominator's EXPONENTS get MULTIPLIED to the outer exponent! $\begin{bmatrix}
1 \\
3
\end{bmatrix}^{2} = \begin{bmatrix}
1 \\
3
\end{bmatrix}^{$

$$\frac{2}{5 \times 5 \times 5} = \frac{2}{5 \times 5 \times 5} \times \frac{2}{5 \times 5 \times 5 \times 5} = \frac{2^{3}}{5^{12}}$$
BUSE

RULE 6: When raising a PRODUCT (such as a coefficient and its variable 2x) to a POWER,

MULTIPLY

the outer EXPONENT to

of the inner exponents on EACH PART!

$$(5m)^{2} = (5m)(5m) = 5m^{2}$$

$$(x^{2}x^{3})^{3} - (x^{2}x^{3})(x^{2}x^{3}) - x^{6}y^{9}$$

$$(x^{2}y^{3})^{3} = (x^{2}y^{3})(x^{2}y^{3})(x^{2}y^{3}) = xy$$

$$(xxyyy)(xxyyy)(xxyyy)$$

$$(3x^{2})^{4} = (3xx)(3xx)(3xx)(3xx) = 3^{4}x^{8}$$

Repeated Mult. Single Powe

coef always bef. Jan 81x evaluated

105 pt 2#1-4, 14-17, 21