3TOPIC: _____

EQ: _____

QUESTIONS: | **NOTES:**

What would you do to simplify the following? $x + x =$ _____

What about: $x \cdot x =$ _____

Describe the difference between: $x + x$ and $x \cdot x$

Product Rule:

$$x^a \cdot x^b = x^{a+b}$$

Problem	Expand	Simplify
$y^5 \cdot y^2$		
$m^2 \cdot m^4$		
$4y \cdot 2y^2$		
$7x^2 \cdot 3x^3 \cdot x$		

*Multiply coefficients
*Add exponents

Examples

1. $xy \cdot x^2y^3$

2. $abc \cdot abc \cdot abc$

3. $5k^5 \cdot 3k^2$

Power of a Power Rule:

$$(x^a)^b = x^{a*b}$$

How is this rule different from the product rule? $x^a \cdot x^b = x^{a+b}$

Examples

1. $(5^2)^2$
2. $(p^3)^9$
3. $(x^2)^4$
4. $(-9)^2$
5. -9^2
6. $(y^6)^5$

Power of a Product Rule:

$$(x \cdot y)^a = x^a \cdot y^a$$

Examples

*There is often a coefficient before the variables. This number must also be raised to a power!

1. $(3x^2)^3$
2. $(4y^5)^2$
3. $(2mn^2)^4$
4. $(6m^2k^3)^2$
5. $(5x^2y^{10})^6$
6. $(-2x^3)^7$

Summary: _____

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