Thank you for previewing the Exponent Operations Guided Notes!

If you encounter an issue, whether a typo or a mathematical error or something else, PLEASE contact me and I will me more than happy to help sort it out. I want you to enjoy this product to the fullest. *You can email me here:* **johanna@misskuipersclassroom.com**

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Miss Kuiper's CLASSROOM

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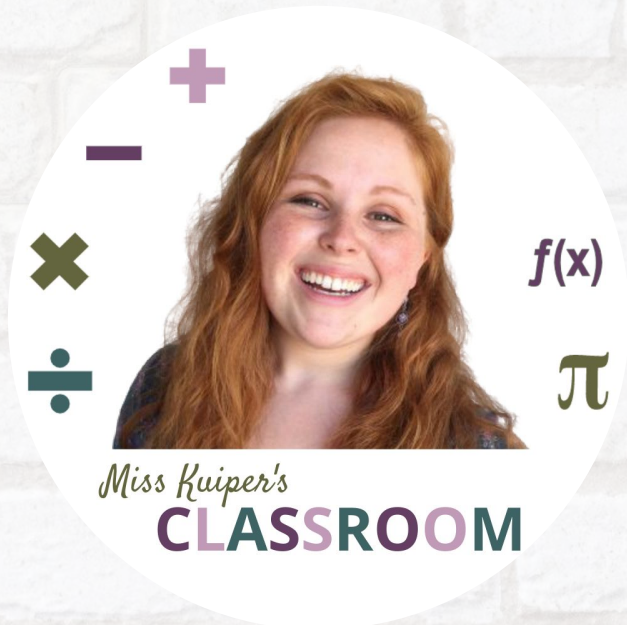
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Quotient of Powers Rule

When dividing two powers with the base of the same value, keep the bases the same and then subtract the exponents.

$$x^5 \div x^2 = \frac{x^5}{x^2}$$

$$x^5 = x \cdot x \cdot x \cdot x \cdot x \qquad x^2 = x \cdot x$$

$$\frac{x \cdot x \cdot x \cdot x \cdot x}{x \cdot x}$$

Expression	Expanded Form
$x^5 \div x^2 = \dfrac{x^5}{x^2}$	$\dfrac{x \cdot x \cdot x \cdot x \cdot x}{x \cdot x} = x \cdot x \cdot x$
$9^4 \div 9$	
$4^4 \div 4^2$	

Power of Power Rule

When a power is being raised by another ... exponents together.

$$(x \cdots$$

Expression	Expanded For...
$(x^2)^4$	$(x \cdot x)(x \cdot x)(x \cdot x)(...$
$(9^4)^3$	
$(4^4)^2$	

Exponent Operations

Name: _____ Per: _____

Learning Target: I can write an exponential expression in the expanded form and then simplify using the exponent rules.

Academic Vocabulary

Exponent	
Base	
Exponential Form	
Expanded or Factored Form	
Standard Form	

Exponent Operations Notes

To use properties of exponents, you will need to be able to expand exponents, complete an operation, and then put it back into exponential^{form}.

Fill in the blanks on the table to the right.

Exponential^{Form}	Expanded Form
a^4	$a \cdot a \cdot a \cdot a$
5^2	
	$3 \cdot 3 \cdot 3$

Product of Powers Rule

When multiplying two powers with the base of the same value, keep the bases the same and then add the exponents together.

$$x^2 \cdot x^3$$

$$x^2 = x \cdot x \qquad x^3 = x \cdot x \cdot x$$

$$x^2 \cdot x^3 = x \cdot x \cdot x \cdot x \cdot x$$

$$x^2 \cdot x^3 = x^5$$

Expression	Expanded Form	Exponential^{Form}	Standard Form
$x^2 \cdot x^3$	$x \cdot x \cdot x \cdot x \cdot x$	x^5	N/A
$9^4 \cdot 9$			
$4^4 \cdot 4^2$			

Step-by-Step Guide

Product of Powers Rule

When multiplying two powers with the base of the same value, keep the bases the same and then add the exponents together.

$$x^2 \cdot x^3$$

$$x^2 = x \cdot x \qquad x^3 = x \cdot x \cdot x$$

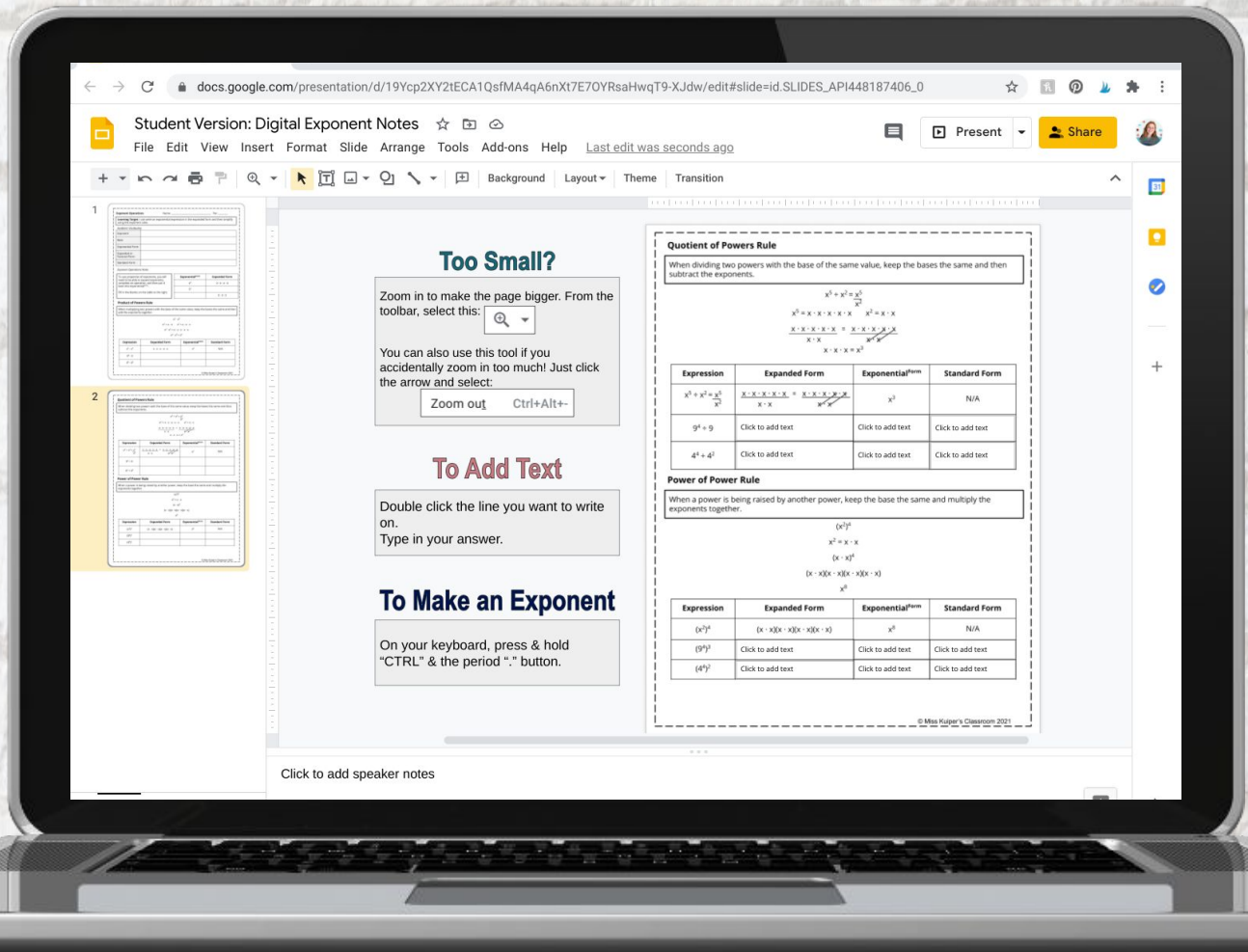$$x^2 \cdot x^3 = x \cdot x \cdot x \cdot x \cdot x$$

$$x^2 \cdot x^3 = x^5$$

Expression	Expanded Form	Exponential Form	Standard Form
$x^5 \div x^2 = \dfrac{x^5}{x^2}$	$\dfrac{x \cdot x \cdot x \cdot x \cdot x}{x \cdot x} = \dfrac{x \cdot x \cdot x \cdot \cancel{x} \cdot \cancel{x}}{\cancel{x} \cdot \cancel{x}}$	x^3	N/A
$9^4 \div 9$			
$4^4 \div 4^2$			

Academic Vocab

Academic Vocabulary

Exponent	
Base	
Exponential Form	
Expanded or Factored Form	
Standard Form	

What's Next?

You can read about how to reach your low-level learners and build them up to grade-level!
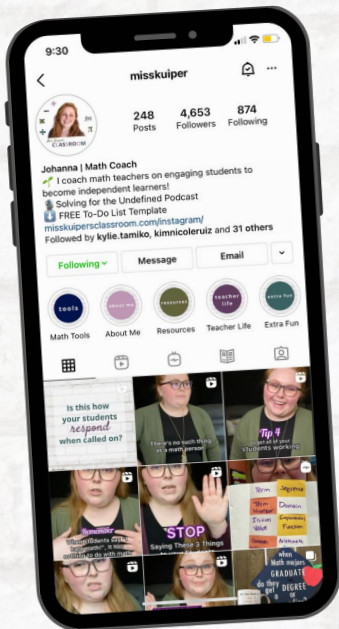
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