Lesson 3.2: Expon	ent Laws Part 1	1
Main Idea/Tips		
Learning Outcomes	 Explain and apply the exponent laws: Product Rule Quotient Rule Power Rule 	
Product Rule	When multiplying powers with the base, the exponents.	
	General Case: Where x is the base and a and b are powers $a^{x} x a^{y} = a^{(x+y)}$	
Numbers in standard form means to evaluate to a single number	Example 1: Write the following as repeated multiplication, then using the product rule. Write in standard form (evaluate) (-2) ⁴ x (-2) ² a. Repeated multiplication:	
	b. Product rule	

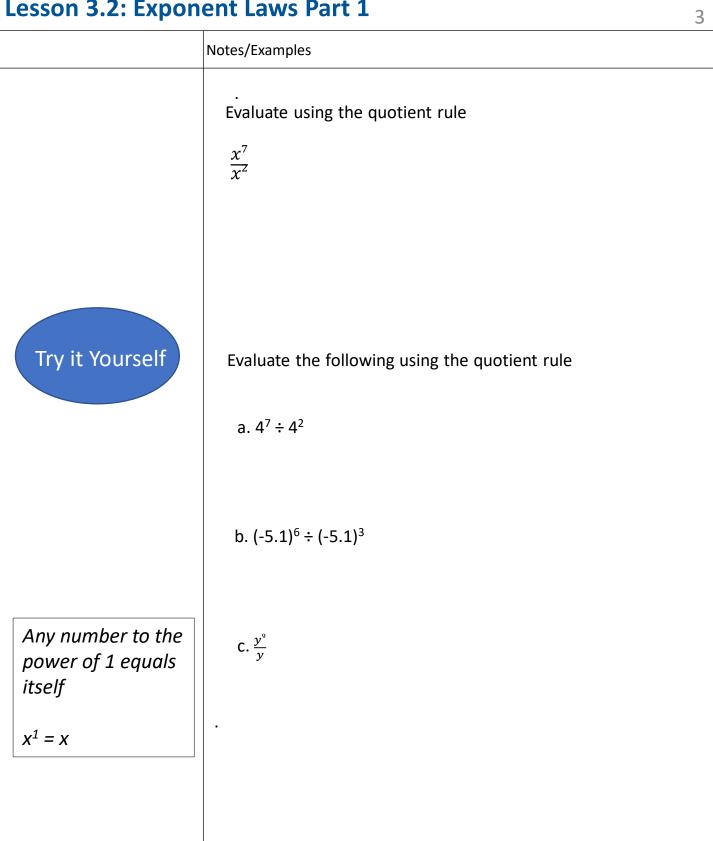
AMDG

Exponents

	Notes
Try it Yourself	Solve the following using repeated multiplication and using the product rule. a.(4) ² x (4) ⁵
	b. (-3) ³ x (-3) ³
	C. $(\frac{1}{2})^4 \times (\frac{1}{2})^2$
	d. – 2 ⁵ x 2 ³
Quotient Rule	When dividing powers with the base, the exponents
	General case : Where x is the base and a and b are powers.
	$\mathbf{x}^{a} \div \mathbf{x}^{b} = \mathbf{x}^{(a-b)}$
	 Write the following as repeated multiplication, then use the quotient rule to write in standard form
	$(-2)^5 \div (-2)^2$

Exponents

2



Lesson 3.2: Expon	ent Laws Part 1	4
	Notes	
Power Rule	. When a is raised to an exponent, the exponents.	
	General Case: Where x is the base and a and be are exponents $(-a)b$	
	$(\mathbf{x}^{a})^{b} = \mathbf{x}^{ab}$	
	Write the following as repeated multiplication and evaluate	•
	1. $(2^3)^2$	
	a. Repeated multiplication:	
	b. Power rule	
	2. ((-6) ⁴) ²	
	a. Repeated multiplication:	
	b. Power rule	

Lesson J.Z. Exponent Laws Part I		
	Notes	
Try it Yourself	Use the power rule for the following to write as a single power: 1. (3 ²) ⁵	
	2. ((-10) ³) ⁵	
	3. (y ^m) ⁿ	
	4. (4.2 ⁵) ³	
Expand Your Knowledge	Apply the product rule, quotient rule or power rule to solve for the missing exponent. 1. 7 ² x 7 ^x = 7 ¹⁸	
	2. $5^{x} \div 5^{2} = 5^{5}$	
	3. $(2^4)^{\times} = 2^{20}$	
Homework:	p3. #15-38	

AMDG

Worksheet to be handed in

Exponents

5