

Name: _____

Date: _____

Learning Goal 2.2	I can apply exponent laws to expressions.
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Nominate one group member to get a stack of cards. Draw three cards and record them here.

$a =$	$b =$	$c =$
Base	Bigger Exponent	Smaller Exponent

Create two powers from these three numbers.

$a^b =$	$a^c =$
Repeated Multiplication	

Let's try to find a pattern when multiplying powers of the same base.

	Written as Repeated Multiplication	Written as a Power
$a^b \times a^c =$		
$b^a \times b^c =$		
$c^a \times c^b =$		

Could you make a general statement for **multiplying powers of the same base**?

Let's try to find a pattern when dividing powers of the same base. Make sure that the bigger exponent is always in the numerator.

	Written as Repeated Multiplication/Division	Written as a Power
$\frac{a^b}{a^c}$		
$\frac{b^a}{b^c}$		
$\frac{c^a}{c^b}$		

Could you make a general statement for **dividing powers of the same base**?

Let's try to find a pattern when a power is the base of another power.

	Written as Repeated Multiplication	Written as a Power
$(a^b)^c$		
$(a^c)^b$		
$(b^a)^c$		
$(b^c)^a$		
$(c^a)^b$		
$(c^b)^a$		

Could you make a general statement for **when a power is the base of another power**?

Let's try dividing powers of the same base again. This time

- Use your conclusions about division, and
- Make sure that the bigger exponent is always in the denominator.

	Written as Repeated Multiplication/Division	Written using your division rule	Written as a Power
$\frac{a^c}{a^b}$			
$\frac{b^c}{b^a}$			
$\frac{c^b}{c^a}$			

Could you make a general statement for **dividing powers of the same base, when the exponent in the denominator is larger than the exponent in the numerator?**

Let's try dividing powers of the same base one more time. This time

- Use your conclusions about division, and
- Make sure that the exponent is the same in both the numerator and the denominator.

	Written as Repeated Multiplication/Division	Written using your division rule	Written as a Power
$\frac{a^b}{a^b}$			
$\frac{a^c}{a^c}$			
$\frac{b^a}{b^a}$			
$\frac{c^b}{c^b}$			

Could you make a general statement for **dividing powers of the same base, when the exponent in the denominator is equal the exponent in the numerator?** What does this tell us about the exponent zero?