**Ch 1: Exponential Notation (Day 5)**

1. **Exponent of 1 Law:** Any base to the power of 1 equals \_\_\_\_\_.





1. **Zero Law:** Any base (except 0) to the power of zero equals \_\_.





1. **Multiplication (Product) Law:**

When multiplying powers with the same base we \_\_\_\_\_\_\_\_ the exponents.





1. **Division Law:**



When dividing powers with the same base we \_\_\_\_\_\_\_\_\_\_\_\_ the exponents.









1. **Power Law:**

When a power is raised to an exponent we \_\_\_\_\_\_\_\_\_\_\_\_\_ the exponents.







1. **Negative Exponents Law**



24 =



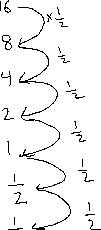
23 =



22 =



21 =



20 =



2-1=



2-2 =



2-3 =



**Negative Law:** A negative exponent is changed to a positive by reciprocating the base.

 also 

**\*We never leave negative exponents in our answer**



**Evaluate:**



i)  ii) 



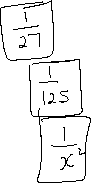
iii)  iv) 



v)  vi) 



vii)  viii) 



ix)  x) 



**If the base is a fraction, flip it and change the exponent to a positive.**



**Examples:**



i)  ii) 



iii)  iv) 



v)  vi) 



vii)  viii) 



**A negative exponent in the denominator becomes a positive exponent in the numerator:**



i)  ii) 

iii)  iv) 

**ex: Rewrite with positive exponents:**

i)  ii) 

**Ex: Use a power with a negative exponent (other than -1) to write an equivalent form for:**

i)  ii)  iii) 

1. **Rational Exponents**

A radical can be changed into a fractional exponent or a fractional exponent can be changed into as radical as follows:



**Examples: Evaluate**

i)  ii) 

iii)  iv) 

v)  vi) 

vii)  viii) 

**Write each number as a power with exponent **

i) 5 ii) 7

**Write in exponential form: **

i)  ii) 

iii)  iv) 

**Examples:**

i)  ii) 

iii) 

\* The power law is always done before the multiplication and division laws \*

iv)  v) 

vi) 

1. **Combining Negative Exponents and Fractional Exponents**



i)  ii) 

iii)  iv) 

v)  vi) 

**Day 5 More Practice**

The laws should be done in the following order:

1. Negative Power Law: reciprocate the entire bracket
2. Power Law
3. Negative Law: reciprocate individual terms
4. Multiplication Law and Division Laws

Examples: Simplify

i)  ii) 

iii)  iv) 

v)  vi) 

vii)  viii) 

Evaluate if *x* = -1 and *y* = 2

(\*We should simplify first, before substituting *x* and *y*)

