**Lesson 2.1 Integer Exponents**

**Vocab:**

Base – the number which is affected by the number

Exponent – the number that states how many time the base is multiplied.

Ex: 1a. $3^{2}$ = 3\*3 = 9 1b. $4^{3}$ = 4\*4\*4 = 64

 3 – Base 4 – Base

 2 – Exponent 3 – Exponent

**Properties of Integer Exponents:**

*Zero Exponent Rule -* $x^{0}$= 1

* Any power to 0 is always 1, no matter how small or big the base.

*Negative Exponent Rule* - $x^{-2}$ = $\frac{1}{x2}$

* Put 1 over the integer exponent.

*Product Exponent Rule* - $x^{2}$ \* $x^{3}$ = $x^{2+3}$ = $x^{5}$

* If bases are equal and numbers are multiplied, add exponents

*Quotient Exponent Rule* - $x^{3}$ $÷$ $x^{2}$ = $x^{3-2}$ = $x^{1}$

* If bases are equal and numbers are divided, subtract exponents

*Exponent Power Rule* – $(x^{2})^{3}$ = $x^{2\*3}$ = $x^{6}$

* If a base is being raised to a power which is being raised to another power, multiply exponents.