## Math 9

Name: $\qquad$

## 2.0 - Introduction to Powers

Date: $\qquad$

## Homework Assignment

A power of 2 is used to write a number as a SQUARE number. A square number can be expressed as:
I. Area MODEL
e.g. This Area Model represents the value 9, because it has an AREA of 9 units $^{2}$
II. Standard Form

Standard form is simply the total AREA of the Area Model shown above $\boldsymbol{\rightarrow} \mathbf{9}$

## II. Exponent Form

An example of exponent form is when we write the AREA using a POWER of $2 \rightarrow 3^{2}=[\text { side length }]^{2}$

## III. Expanded Form or Product Form

Expanded form is when we write the AREA as a product or repeated multiplication using equal factors:

$$
\rightarrow 3 \times 3 \quad[\text { Note }: 3 \times 3=9]
$$

So...the number 9 can be written as: $\mathbf{9}$ or $\mathbf{3}^{\mathbf{2}}$ or $\mathbf{3 \times 3}$

A power of 3 is used to write a number as a CUBIC number. A cubic number can be expressed as:
I. Volume MODEL
e.g. This Volume Model represents the value 8, because it has a VOLUME of 8.

## II. Standard Form



Standard form is simply the total VOLUME of the Volume Model shown above $\boldsymbol{\rightarrow} \mathbf{8}$

## II. Exponent Form

An example of exponent form is when we write $\mathbf{8}$ using a POWER of $3 \rightarrow 2^{3}=[\text { side length }]^{3}$

## III. Expanded Form or Product Form

Expanded form is when we write the VOLUME as a product of equal factors:

$$
\rightarrow 2 \times 2 \times 2 \quad[\text { Note }: 2 \times 2 \times 2=8]
$$

So...the number 8 can be written as:

Complete the following table:

| Area/Volume Model |  | Exponent/Power <br> Form | Expanded/Product <br> Form | Standard Form |
| ---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Draw model here |  |  |  |  |

