**ALGEBRA ONE NAME: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**PERFECT SQUARES/CUBES ACTIVITY**

For this activity you will need:

pencil tape graphing calculator

template scissors

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| Step 1: | Build a cube out of the template that measures 1inch x 1 inch x 1 inch.  Hand in the cube to your teacher, it will be used later during this class period. |
| Step 2: | On the calculator, type in y1 = .  Look at the shape of the graph. What did we call this shape?  Go to table and find the values of x for which y is a whole number.  The x values for which the y-values are whole are the “perfect squares.” |
| Step 3: | List the perfect squares from 0 – 225 |
| Step 4: | Try scrolling to find the square roots of negative x-values. What happens? Why? |
| Step 5: | On the calculator, type in y1 = . Type in x ∧ (1/2).  Fill in the table and graph the square root function.   |  |  | | --- | --- | | x | y | | -2 |  | | -1 |  | | 0 |  | | 1 |  | | 4 |  | | 9 |  | | 16 |  |   Notice anything similar to y= ?  What is the domain of this function? |

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| Step 6: | On the calculator, type in y1 = . Use y = x ∧ (1/3).  Look at the shape of the graph. What did we call this shape?  Go to table and find the values of x for which y is a whole number.  The x values for which the y-values are whole are the “perfect cubes.” |
| Step 7: | Try scrolling to find the cube roots of negative x-values. What happens? Why?  List the perfect cubes from -27 < y < 216. |
| Step 8: | Fill in the table and graph the cube root function.   |  |  | | --- | --- | | x | y | | -27 |  | | -8 |  | | -1 |  | | 0 |  | | 1 |  | | 8 |  | | 27 |  |   What is the domain of this function? |
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At the beginning of class, everyone made a one-inch cube.

How many one-inch cubes would be required to make a cube that is 3 cubes wide, 3 cubes deep and 3 cubes high?

Think of a one inch square? How many square inches are in a square foot?

(Look at the model at the front of class).

How many cubic inches would be required to fill a cubic foot?