

Name: _____

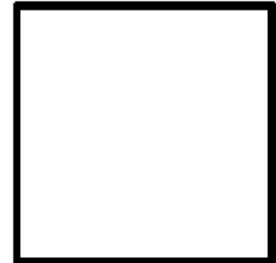
Date: _____

Ms. Streffacio

Class: _____

MODEL

- Let's say we have a square with a side length of 3 units. To find the area of the square, find the product of _____ and _____. Another way to write this is _____ which means _____. Notice that we are dealing with a square here, thus the term _____ is used.



- Now, let's say we know the area of a square is 16 units squared. To determine the area of the square we need to determine what number squared equals _____ = _____. Another way to write this is _____.

- The square root symbol looks like this _____. Explain what the square root symbol means _____

- Can you calculate the square root of a negative number? _____ Explain your reasoning _____

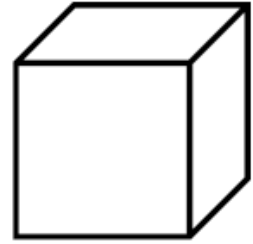
- A square has an area of 25 units². Explain how to determine the side length of the square. _____
 $s = \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$.

CFU

Area = 100 units ²	Area = 49 units ²	Area = 81 units ²

Guided Practice

- Now, let's say we have a cube with a side length of 2 units. To find the volume of a cube we will find the product of _____ and _____ and _____. Another way to write this is _____ which means _____. Notice that we are dealing with cubes here, thus the term _____.



- Now, let's say we know the volume of a cube is 64 units^3 . To determine the volume of the cube we need to determine what number cubed equals _____ = _____. Another way to write this is _____.
- The cube root symbol looks like this _____. Explain what the cube root symbol means _____

- Explain how the cube root is different than the square root _____

- Can you calculate the cube root of a negative number? _____
Explain your reasoning _____
- A cube has a volume of 8 units^3 . Explain how to determine the side length of the cube. _____
 $s = \text{_____} = \text{_____}$.

CFU

Practice: Determine the side length of a cube given the volume. Show your work using the cube root symbol.

Volume = 125 units^3	Volume = 1000 units^3	Volume = 1 units^3
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MODEL

- The opposite of squaring a number is calculating the _____
The opposite of cubing a number is calculating the _____
 - $x^2 = 81$, to algebraically solve for x we need to cancel out the squared.
To do so, we will do the opposite of squaring which is taking the _____.
 $\sqrt{x^2} = \sqrt{81}$ The square root and squared will cancel so now the equations reads $x = \sqrt{81}$. In other words this is asking what number multiplied by itself equals _____. Note that there are actually two numbers that satisfy this condition _____ and _____. The solutions are written as $x =$ _____.
 - Now, let's look at the equation $x^2 = \frac{1}{9}$. Solve for x by taking the _____ of both sides. Now, your equation is _____. What numbers multiplied by themselves equals $\frac{1}{9}$? Therefore $x =$ _____.
 - $x^3 = 8$, to algebraically solve for x we need to cancel out the cubed.
To do so, we will do the opposite of cubing which is taking the _____.
 $\sqrt[3]{x^3} = \sqrt[3]{8}$ The cube root and cubed will cancel, so now the equation reads $x = \sqrt[3]{8}$. In other words, this is asking what number multiplied by itself three times equals _____. The number that satisfies this condition is _____. Would -2 also work? _____. Explain your reasoning _____

- The solution to the equation $x^3 = 8$ is $x =$ _____.
- Now, let's look at the equation $y^3 = 0.064$. Solve for y by taking the _____
_____. Now your equation is _____.
What number multiplied by itself three times equals 0.064? _____
Therefore $y =$ _____
Explain how you determined the cube root of 0.064 _____

INDEPENDENT PRACTICE

Practice: Solve the following equations. Show your work.

$a^2 = 16$	$c^2 = 0.25$
$x^2 = \frac{1}{49}$	$y^2 = 10,000$
$f^3 = -216$	$h^3 = 0.027$
$m^3 = \frac{1}{1000}$	$n^3 = 8,000$

#1 – 4 Find the side lengths. Show your work.

1) Find the side length of a square with area 36 in^2	2) Find the side length of a square with area 121 cm^2
3) Find the side length of a cube with volume 8 ft^3	4) Find the side length of a cube with volume 27 m^3

#5 – 8 Solve the equations. Show your work.

5) $x^2 = 144$	6) $y^2 = 0.81$
7) $x^3 = -1,000$	8) $y^3 = \frac{1}{216}$