

NAME: _____

Math 7.2, Period _____

Mr. Rogove

Date: _____

LEARNING OBJECTIVE: We will solve equations involving square roots and cube roots. (Lesson 69)

CONCEPT DEVELOPMENT:

Find a Rule Part 1		Find a Rule Part 2	
1	1	1	1
2	4	2	8
3	9	3	27
9	81	5	125
11	121	6	216
15	225	11 × 11 × 11	1331
7	49	4	64
10	100	10	1000
12	144	7	343
13	169	14	2,744
$m \rightarrow$	m^2	p	p^3
$\sqrt{n} \leftarrow$	n	$\sqrt[3]{q}$	q

Take the first # and square it!

Take the 1st # and cube it!

Cube Roots: The cube root of a number, x , is the number, y which satisfy the equation $x = y^3$. The notation we use is as follows: $\sqrt[3]{x} = y$

Example: $8 = 2^3$ and $\sqrt[3]{8} = 2$

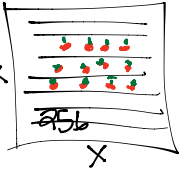
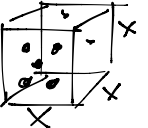
$$\sqrt[3]{512}$$

The properties of equality extend to square roots and cube roots.

Example: If $x^2 = 36$, then $\sqrt{x^2} = \sqrt{36}$

GUIDED PRACTICE:**Steps for Solving Equations With Square Roots and Cube Roots**

1. If necessary, isolate the term that is squared or cubed.
2. Take the square root or cube root of both sides of the equation and find the positive value that makes the equation true.
3. Check your solution.

$x^2 = 576$ $\sqrt{x^2} = \sqrt{576}$ $x = 24$ $24^2 = 576$ $576 \checkmark = 576$	<p>A square shaped strawberry patch has an exact area of 256 square acres. What are the dimensions of the patch? Write and solve an equation.</p> $x^2 = 256$ $\sqrt{x^2} = \sqrt{256}$ $x = 16$ <p>The patch is 16 acres x 16 acres</p> 
<p>An oversized die has a volume of 64 cubic millimeters. Find the dimensions of the die. Write and solve an equation.</p>  $x^3 = 64$ $\sqrt[3]{x^3} = \sqrt[3]{64}$ $x = 4$ <p>The die is 4m x 4m x 4m</p>	$x^3 = 216$ $\sqrt[3]{x^3} = \sqrt[3]{216}$
$x^2 = 361^{-1}$ $\sqrt{x^2} = \sqrt{\frac{1}{361}}$ $x = \frac{1}{19}$ $\frac{1}{19} \cdot \frac{1}{19} = \frac{1}{361} = 361^{-1}$	$x^2 = 441^{-1}$ $\frac{1}{21}$

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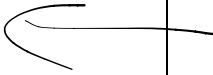
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$$x^3 = 343^{-1}$$

$$x^3 = 1000^{-1}$$


$$\begin{array}{r} x^2 - 18 = 63 \\ + 18 \quad + 18 \\ \hline \end{array}$$

$$x^2 + 9 = 130$$


$$x^3 + 19 = 144$$

$$x^3 - 54 = -27$$

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INDEPENDENT PRACTICE:

N/A

ACTIVATING PRIOR KNOWLEDGE:

Simplify:

$$2^{-3} = \frac{1}{2^3} = \frac{1}{8}$$
$$\frac{1}{2 \cdot 2 \cdot 2}$$

Simplify:

$$\frac{1}{4^{-2}} = 4^2 = 16$$
$$\frac{1}{4^2} = \frac{1}{16}$$
$$\frac{1}{16}$$

CLOSURE:

Is 6 a solution for the following equation?

$$x^2 = 5x + 4$$

NOTES:

Homework could be Khan Cube Roots, This aligns with lesson 3. Can also give PoW quilts for homework.