Grade 6 Gifted
Day 2

Standards	***8.EEI.2*** Investigate concepts of square and cube roots. b. Evaluate square roots of perfect squares. c. Evaluate cube roots of perfect cubes.
Learning Targets **I Can Statements**	I can evaluate perfect square roots and perfect cube roots.
Essential Question(s)	What are other real-world situations that could benefit using square and cube roots?
Resources	No additional resources needed. However, all answers should be written on a separate sheet of paper.
Learning Activities or Experiences	1. Complete at least 3 topics of your **ALEKS** pathway. (if available) 2. Review attached notes and complete the practice problems. 3. Complete the "Today's Thought" activity.

NOTE: *For additional practice aligned to your grade for SC READY review please refer to the 6th grade level assignments.*

Square Root Lesson Notes

Area of a Square

The area of a square is the SQUARE of the length of a side. (s^2)

The square of an integer is a **perfect square**.
Example: $2^2 = 4$ (4 is a perfect square)
$4^2 = 16$ (16 is a perfect square)

Everything in Math has an Opposite

The opposite of a
SQUARE is a **SQUARE ROOT**.

The symbol: √ indicates a NONNEGATIVE Square Root of a number.
Square Root = Radical
Same thing!!!

Examples

Simplify each Square Root:

√64 = ?	8
-√121 = ?	-11
√100 = ?	10
-√16 = ?	-4

13 Perfect Squares

0, 1, 4, 9, 16, 25, 36, 49, 64, 81, 100, 121, and 144.

Recommend Memorizing.

Cube Root Lesson Notes

Cube Roots

The cube root of 64 is written as $\sqrt[3]{64}$ which is different from the square root which is written as $\sqrt[2]{64}$.

What's the difference between a square root and a cube root?

What's the Difference?

A **square root** is the opposite of **squaring** a number.

3^2 is 9, so the square root of 9 ($\sqrt[2]{9}$) is 3!

- A square root of a number is ...
  - a value that can be **multiplied by itself** to give the original number!
- A square root of **9** is ...
  - **3**, because **when 3 is multiplied by itself** you get **9**!

What's the Difference? Cube Roots

A **cube root** goes in three directions in order to have something **cubed** (or multiplied by itself three times.) Finding the cube root is then the inverse operation of finding cube.

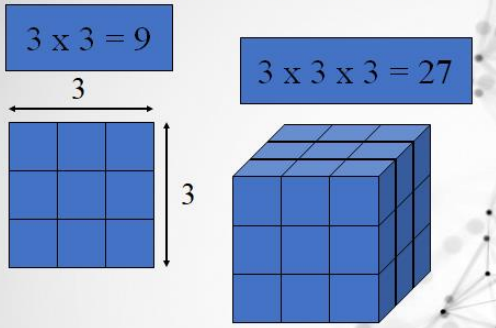
3^3 is 27, so the $\sqrt[3]{27}$ **is 3!**

- The cube root of a number is ...
  - a special value that when **cubed** gives the original number!
- The cube root of **27** is ...
  - **3**, because **when 3 is cubed** you get **27**!

THE SYMBOL "$\sqrt[3]{\ }$" DENOTES "CUBE ROOT"

- We know that $2^3 = 8$; so we say that cube root of 8 is 2. We write $\sqrt[3]{8} = 2$.
  - $8^3 = 512$; therefore $\sqrt[3]{512} = 8$.

What's the Difference Visually?



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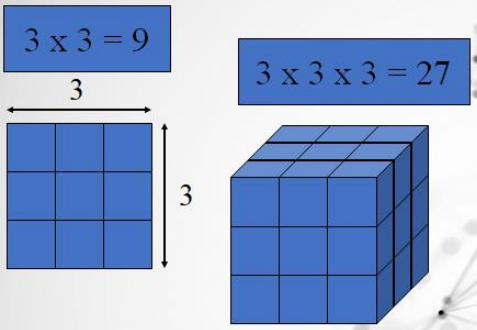

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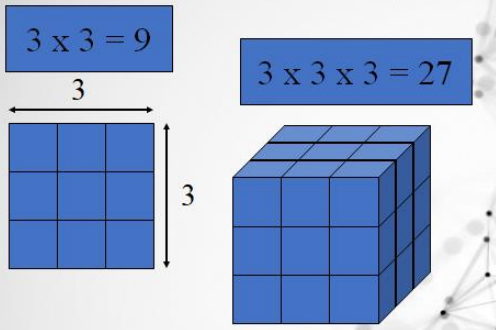

Today's Thought

1. Adele knows the area of a square to be 144 cm^2. If $s^2 = 144$, what is the value of s?

   _____

2. What value is the solution of the equation $x^3 = 125$?

   _____

3. Which expression has the greatest value when simplified?

   a. $-\sqrt[3]{27}$
   b. $(3)^{-2}$
   c. $(-3)^3$
   d. $-\sqrt{81}$

4. Which list is ordered from *least* to *greatest*?

   a. $(-64)^3$, $-\sqrt{64^2}$, $(64)^{-2}$, $\sqrt[3]{64^3}$
   b. $(-64)^3$, $-\sqrt{64^2}$, $\sqrt[3]{64^3}$, $(64)^{-2}$
   c. $-\sqrt{64^2}$, $(-64)^3$, $(64)^{-2}$, $\sqrt[3]{64^3}$
   d. $(64)^{-2}$, $\sqrt[3]{64^3}$, $-\sqrt{64^2}$, $(-64)^3$