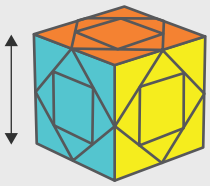
Learning Outcome:
Estimate value of irrational number cube root (till tenths), compare with other numbers, and plot the number on the number line.
8.NS.A.2

Cube roots have helped us a lot with our packing, haven't they? Let's see if you can answer a few questions related to them.

1 Estimate the value of $\sqrt[3]{-1728} + 2$.

-10

2 The volume of the cube is $\sqrt[3]{32}$ ft^3. Calculate the approximate length of its side.



3.2 32

volume = (side)^3 = 32

side = $\sqrt[3]{32}$

= 3.2

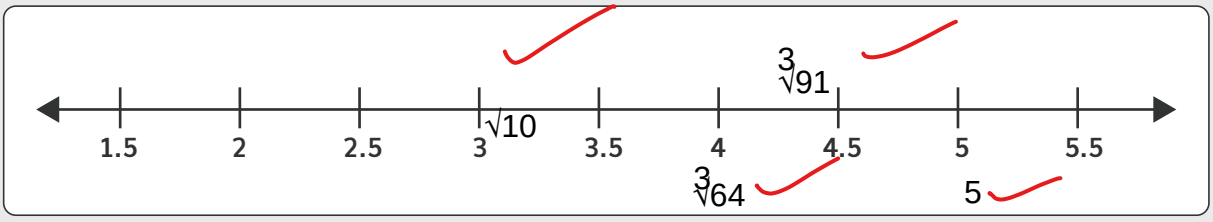
3 $\sqrt[3]{32} > \sqrt{8}$ (True or false)

True

4 Compare the areas of the following using >, <, or =.

$\sqrt[3]{216}$ < $\sqrt{49}$

5 Place the following on the number line.
$\sqrt{10}$, 5, $\sqrt[3]{64}$, $\sqrt[3]{91}$



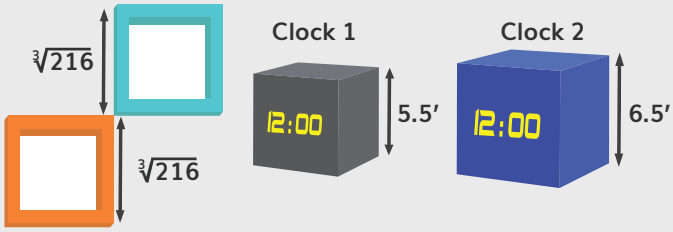
6 Fill in the blank.

Adding 3 feet to a $5\sqrt{2}$ feet long dimension makes it a/an Irrational number.

Learning Outcome:
Estimate value of irrational number cube root (till tenths), compare with other numbers, and plot the number on the number line.
8.NS.A.2

Are cube roots only useful when it comes to moving houses? Well, Hazel says, they are not! She has come across a few more cases where we can find cube roots. But she's not sure on how to use them. Can you help Hazel by solving the following questions?

1 Hazel wanted to buy a cube-shaped alarm clock that fits inside the wall shelf of side $\sqrt[3]{216}$ inches. The store has two cube-shaped alarm clocks with lengths 5.5 inches and 6.5 inches, respectively. Which one should she buy?

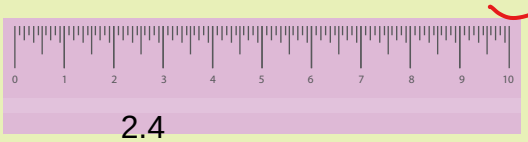


5.5

2 Hazel bought a cube-shaped gift of length $\sqrt[3]{200}$ inches for her friend, but the gift store only has cube-shaped boxes with integer sides (in inches) to pack the gift.
What is the length of the smallest gift box that can be used to pack Hazel's gift?

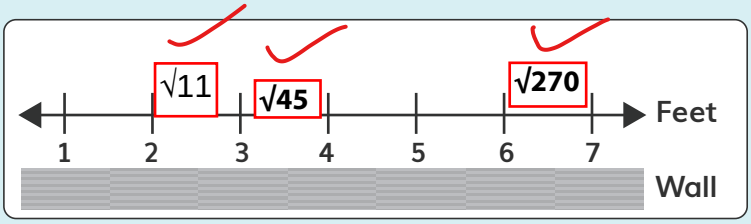
S = 6

3 The volume of an ice cube is 15 cubic inches. Use the ruler to represent the length of its side between two consecutive integers.

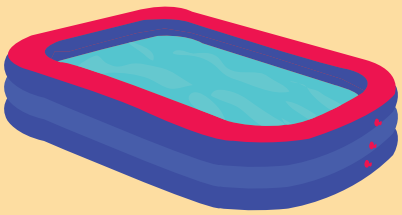


2.4

4 Asymmetry is in fashion. Hence, Hazel decided to place photo frames at a distance of $\sqrt[3]{11}$, $\sqrt[3]{270}$, and $\sqrt[3]{45}$ feet, respectively, from one edge of the wall. Place the photo frames on the wall.



5 Hazel was setting up a pool for her younger brother. She added 32 liters of water, while her brother added $\sqrt[3]{900}$ liters of water. What is the total amount of water in the pool?



41.65 liters

Learning Outcome:
Estimate value of irrational number cube root (till tenths), compare with other numbers, and plot the number on the number line.
8.NS.A.2

You've settled down in your new house, but there's one big wall in your room that's a little plain. Time to work out those creativity muscles with some paint buckets!

An Artistic Flourish

- The volume of your cubicle room is 1000 cubic feet. Calculate the length of the side of the wall.

  $(\text{Length})_{\text{wall}}$ = $\sqrt[3]{\text{Volume}} = \sqrt[3]{1000} = 10$ feet

- You decide to paint squares of different sizes on the wall, with side lengths $\sqrt[3]{16}$, $\sqrt[3]{64}$, $\sqrt[3]{43}$, $\sqrt[3]{8}$, and 1 feet, respectively. (Approximate the value of cube roots to nearest tenth.)
- The wall should contain at least one square with each of the above dimensions.
- Use different colors to represent different dimensions of the square.
  Example:
  $(\text{Square})_{L} = \sqrt[3]{16}$ = Blue = 2.5
  $(\text{Square})_{L} = \sqrt[3]{64}$ = Orange = 4
  $(\text{Square})_{L} = \sqrt[3]{43}$ = Gray = 3.5
  $(\text{Square})_{L} = \sqrt[3]{8}$ = Green = 2
  $(\text{Square})_{L}$ = 1 = Maroon = 1
- The spaces in between can be left blank.
- Consider the given sheet as your wall and start painting!

Colour squares of these length

block of size 4

Length of sides of the squares: