



SUBJECT:- MATHEMATICS CLASS 8

CHAPTER:-7

TOPIC:- (CUBE AND CUBE ROOTS)

STEP 1:-

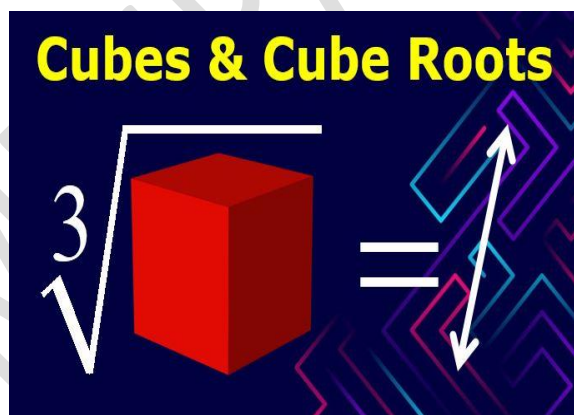
GUIDELINES AND INTRODUCTION

Guidelines: Dear students, kindly refer to the following notes/video links from the Chapter- “CUBE AND CUBE ROOTS” and thereafter do the questions in your math notebook.

Introduction: One of India’s great mathematical geniuses, S. Ramanujan. Once another famous mathematician Prof. G.H. Hardy came to visit him in a taxi whose number was 1729. While talking to Ramanujan, Hardy described this number “a dull number”. Ramanujan quickly pointed out that 1729 was indeed interesting. He said it is the smallest number that can be expressed as a sum of two cubes in two different ways:

$$1729 = 1728 + 1 = 12^3 + 1^3$$

$$1729 = 1000 + 729 = 10^3 + 9^3$$



1729 has since been known as the Hardy – Ramanujan Number, even though this feature of 1729 was known more than 300 years before Ramanujan. How did Ramanujan know this? Well, he loved numbers. All through his life, he experimented with numbers. He probably found numbers that were expressed as the sum of two squares and sum of two cubes also. There are many other interesting patterns of cubes. Let us learn about cubes, cube roots and many other interesting facts related to them.

STEP 2:-

Subtopics:-

- 1) Cube of a number
- 2) Observe interesting pattern related to cube numbers and find cubes of given numbers
- 3) Cube root of a number
- 4) Calculate cube root of given numbers by prime factorization and estimation method

STEP 3:-

Key points and important links for reference:-

1) <https://www.youtube.com/watch?v=DBysu0wjFLYthe>

Some important points

2) https://diksha.gov.in/play/content/do_312795702792658944110359?referrer=utm_source%3Ddiksha_mobile%26utm_content%3Ddo_312796455267672064117183%26utm_campaign%3Dshare_content

STEP 4 :-Points to remember

1. Numbers like 1729, 4104, 13832, are known as Hardy – Ramanujan Numbers. They can be expressed as sum of two cubes in two different ways.
2. Numbers obtained when a number is multiplied by itself three times are known as cube numbers. For example 1, 8, 27, ... etc.
3. If in the prime factorisation of any number each factor appears three times, then the number is a perfect cube.
4. The symbol $\sqrt[3]{\quad}$ denotes cube root. For example $\sqrt[3]{27} = 3$
5. Cubes of even numbers are even and those of odd numbers are odd.
6. The cube of a negative number is always negative.

ASSIGNMENTS:-

1) Exercise 7.1 and 7.2 from NCERT including examples

2) Practice assignment on introduction to cube roots

https://www.khanacademy.org/math/in-in-class-8th-math-cbse/xa9e4cdc50bd97244:in-in-8th-cubes-cube-roots/xa9e4cdc50bd97244:intro-to-cube-roots/e/cube_roots?modal=1

3) Practice assignment on multiply/divide to make it a perfect cube

<https://www.khanacademy.org/math/in-in-class-8th-math-cbse/xa9e4cdc50bd97244:in-in-8th-cubes-cube-roots/xa9e4cdc50bd97244:properties-of-cubes/e/multiply-divide-to-make-it-a-perfect-cube?modal=1>

4) Practice assignment on estimating cube roots

<https://www.khanacademy.org/math/in-in-class-8th-math-cbse/xa9e4cdc50bd97244:in-in-8th-cubes-cube-roots/xa9e4cdc50bd97244:estimating-cube-roots/e/estimating-cube-roots?modal=1>

5) Objective type questions from the examination point of view

Q1. Which of the following is correct?

- a) Cube of a negative number is always positive
- b) Cube of a negative number is always negative
- c) Cube of a negative number may be negative or positive.
- d) None of the above

Q2. The volume of a cubical box is 64cm^3 . Which of the following is its side?

- a) 2
- b) 4
- c) 6
- d) 8

Q3. If a number is doubled then which of the following statement is true

- a) Its cube is 2 times the cube of the given number
- b) Its cube is 4 times the cube of the given number
- c) Its cube is 8 times the cube of the given number
- d) Its cube is 16 times the cube of the given number

Q4. The cube of 13 is _____.

Q5. The least number to be multiplied with 25 to make it a perfect cube is _____

Q6. The cube 50 will have _____ zeroes.

Q7. Correct the statement: The cube root of 8000 is 200

Q8. Find the cube root of $\frac{-512}{343}$.

Q9. A number ending in 7 will have the units place of its cube as

- a) 3
- b) 9
- c) 1
- d) 6

Q10. Which of the following is equal to its own cube?

- a) -1
- b) 2
- c) 3
- d) -2

Link of NCERT textbook

<http://ncert.nic.in/textbook/textbook.htm?hemh1=0-16>
