

DEVESHTEDIA CLASSES
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WORKSHEET - CUBE AND CUBE ROOT

Class 08 - Mathematics

Section A

1. Which of the following perfect cube is the cube of an even number? [1]

a) 2197 b) 343
c) 216 d) 1331

2. The smallest number which when multiplied with 7200 will make the product a perfect cube, is [1]

a) 10 b) 15
c) 30 d) 20

3. What should be added to 2714 to make the sum a perfect cube? [1]

a) 15 b) 128
c) 30 d) 110

4. If cube root of 175616 is 56, then the value of $\sqrt[3]{175.616} + \sqrt[3]{0.175616} + \sqrt[3]{0.000175616}$ is [1]

a) 62.16 b) 0.168
c) 6.116 d) 6.216

5. The volume of a cubical box is 0.512 m^3 . The length of each side of the box is [1]

a) 0.04 m b) 0.8 m
c) 8 cm d) 8 m

6. $\sqrt[3]{1 - \frac{91}{216}}$ is equal to- [1]

a) $\frac{1}{6}$ b) $\frac{7}{6}$
c) $\frac{11}{6}$ d) $\frac{5}{6}$

7. The smallest number by which 3087 may be multiplied so that the product is a perfect cube, is [1]

a) 5 b) 4
c) 3 d) 6

8. The cube of a 2-digit number will contain _____. [1]

a) 4, 5 or 6 digits b) 5 digits
c) 4 digits d) 6 digits

9. The sum of the cubes of first three natural number is equal to [1]

a) 3^3 b) $(1 + 2 + 3)^2$
c) 3^2 d) $(1 + 2 + 3)^3$

31. **Assertion (A):** The cube of number 6 is 216 and it is written as $(6)^3 = 216$. [1]

Reason (R): A perfect cube is a number, which is obtained by multiplying a natural number thrice.

- a) Both A and R are true and R is the correct explanation of A.
- b) Both A and R are true but R is not the correct explanation of A.
- c) A is true but R is false.
- d) A is false but R is true.

32. **Assertion (A):** The unit digit of the cube root of 24389 is 1. [1]

Reason (R): We can find the cube root of given number by prime factorisation or estimation method.

- a) Both A and R are true and R is the correct explanation of A.
- b) Both A and R are true but R is not the correct explanation of A.
- c) A is true but R is false.
- d) A is false but R is true.

33. **Assertion (A):** Cube root of $\frac{4096}{225}$ is $\frac{16}{5}$. [1]

Reason (R): Cube Root of number m, is the number which is multiplied thrice to get m.

- a) Both A and R are true and R is the correct explanation of A.
- b) Both A and R are true but R is not the correct explanation of A.
- c) A is true but R is false.
- d) A is false but R is true.

34. **Assertion (A):** Write the cube of 8 as the sum of consecutive odd numbers. It can be written as $8^3 = 57 + 59 + 61 + 63 + 65 + 67 + 69 + 71$. [1]

Reason (R): Cubes of a numbers ending with the digit 3 end with digit 8 and vice versa.

- a) Both A and R are true and R is the correct explanation of A.
- b) Both A and R are true but R is not the correct explanation of A.
- c) A is true but R is false.
- d) A is false but R is true.

35. **Assertion (A):** The cube of rational number 3.1 is 28.791. [1]

Reason (R): The cube of an even number is always even.

- a) Both A and R are true and R is the correct explanation of A.
- b) Both A and R are true but R is not the correct explanation of A.
- c) A is true but R is false.
- d) A is false but R is true.

Section B

36. Is 216 a perfect cube? [2]

37. Is 100 a perfect cube? [2]

38. Using prime factorisation, find the cube root of 5832. [2]

39. Using prime factorisation, find the cube root of 512. [2]

40. Is 392 a perfect cube? If not, find the smallest natural number by which 392 must be multiplied so that the product is a perfect cube. [2]

41. Using prime factorisation, find that 128 is a perfect cube. [2]

42. Find the smallest number by which 100 must be multiplied to obtain a perfect cube. [2]

43. Is 68600 a perfect cube? If not, find the smallest number by which 68600 must be multiplied to get a perfect cube? [2]

44. Find out if 6859 is a perfect cube? [2]
45. Using prime factorisation, find the cube root of 2197. [2]

Section C

46. Find the cube root of 110592 by prime factorisation method. [3]

47. Find the cube root of 10648 by prime factorisation method. [3]

48. Find the smallest number by which 675 must be multiplied to obtain a perfect cube. [3]

49. Find the cube root of 15625 by prime factorisation method. [3]

50. Find the cube root of 91125 by prime factorisation method. [3]

51. Find the smallest number by which 81 must be divided to obtain a perfect cube. [3]

52. Find the cube root of 46656 by prime factorisation method. [3]

53. Find the smallest number by which 135 must be divided to obtain a perfect cube. [3]

54. Find the smallest number by which 192 must be divided to obtain a perfect cube. [3]

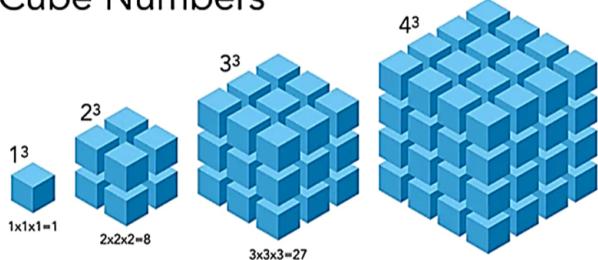
55. Find the smallest number by which 72 must be multiplied to obtain a perfect cube. [3]

Section D

Question No. 56 to 60 are based on the given text. Read the text carefully and answer the questions: [5]

Biju was a student of DPS, Dwarika, Delhi. He was in class VIII. He has a classmate friend Arjun. Arjun was a studious boy, He was fond of studying the number patterns.

Cube Numbers



Once He found some patterns like:

1. $1 = 1^3$ (The very first odd number = 1^3)
2. $3 + 5 = 8 = 2^3$ (Sum of next 2 odd numbers = 2^3)
3. $7 + 9 + 11 = 27 = 3^3$ (Sum of next 3 odd numbers = 3^3)
4. $13 + 15 + 17 + 19 = 64 = 4^3$ (Sum of next 4 odd numbers = 4^3)
5. $21 + 23 + 25 + 27 + 29 = 125 = 5^3$ (Sum of next 5 odd numbers = 5^3)

56. How many consecutive odd numbers will be needed to obtain the sum as 10^3 ?

57. Which one of the following will not be a perfect cube?

a) $13 + 14 + 15$ b) $7 + 9 + 11$
c) $13 + 15 + 17 + 19$ d) $3 + 5$

58. Which one of the following will be a perfect cube?

a) $13 + 15 + 17 + 19$ b) $13 + 14 + 15$
c) $3 + 4 + 5 + 6$ d) $7 + 8 + 9 + 11$

59. How many consecutive odd numbers will be needed to obtain the sum as 12^3 _____.

$$60 \cdot 31 + 33 + 35 + 37 + 39 + 41 = 216 = 6^3.$$

Question No. 61 to 65 are based on the given text. Read the text carefully and answer the questions: [5]

Cube and cube root is one of the most interesting concepts in Mathematics. Cube root is the factor of a number that is multiplied by itself three times to get the resultant number.

When a given number is a perfect cube, we find its cube root as follows:

Step 1: Resolve the given number into prime factors.

For example $216 = 2 \times 2 \times 2 \times 3 \times 3 \times 3$

Step 2: Make groups in triplets of similar factors.

$$216 = (2 \times 2 \times 2) \times (3 \times 3 \times 3)$$

Step 3: Take the product of prime factors, choose one out of every triplet, and give the cube root of the given number.

Thus Cube root of $216 = 2 \times 3 = 6$.

61. The prime factors of 125 are:

a) $6 \times 6 \times 6$ b) $7 \times 7 \times 7$
c) 5×5 d) $5 \times 5 \times 5$

62. The cube root of 64 is?

- a) 6
- b) 3
- c) 5
- d) 4

63. The cube root of 729 is?

64. The cube root of 512 is _____.

65. The prime factors of 343 are $7 \times 7 \times 7$.

a) True b) False

66. Subtract a number x from 6 times that number and then take the cube of the difference. If the result of the difference is 625, then find the value of x .

67. Three numbers are in the ratio 1:2:3 and the sum of their cubes is 4500. Find the numbers.

68. Is 9720 a perfect cube? If not, find the smallest number by which it should be divided to get a perfect cube. Also find the cube root of the quotient. [5]

69. Three numbers are in the ratio $2 : 3 : 4$. The sum of their cubes is 0.334125. Find the numbers.

70. Prove that if a number is tripled, then its cube is 27 times the cube of the given number. [5]