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## CUBES AND CUBE ROOTS

**Q1. Fill in the blanks with the correct option:**

- a. Cube root of  $-64$  is \_\_\_\_\_. (positive/negative)
- b. Cube of  $(-xy)$  is \_\_\_\_\_. ( $-x^3y^3$  /  $-xy^3$ )
- c. Cube root of  $\frac{1}{b}$  is \_\_\_\_\_. ( $\sqrt[3]{1/b}$  /  $\sqrt[3]{1/b}$ )
- d. The digit in the ones place in the cube of  $56$  is \_\_\_\_\_. ( $6$  /  $5$ )

**Q2. Find the prime factorisation of the following numbers and fill in the blanks. Determine whether they are perfect cubes or not, and write Yes/No alongside each of the following:**

Number	Prime factorisation	Perfect cube (Yes/No)
a. 1764	_____	_____
b. 2744	_____	_____
c. 3375	_____	_____

**Q3. Find the smallest number by which 23040 must be**

- a. multiplied
- b. divided

so as to make the resulting number a perfect cube.

Fill in the blanks with the correct number:

- a.  $23040 \times \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$  is a perfect cube.
- b.  $23040 \div \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$  is a perfect cube.

**Q4. Find the cube root of the following numbers:**

a. 15.625 : \_\_\_\_\_

b. 9261 : \_\_\_\_\_

c.  $140\frac{76}{125}$  : \_\_\_\_\_

**Q5. If the length of each side of cube X is three times the side of cube Y, find the ratio of their volumes.**

Ratio of the volume of cube X to the volume of cube Y = \_\_\_\_\_ : \_\_\_\_\_

**Q6. The side of a cube is 3.5 cm. Find the volume of the cube.**

Answer: \_\_\_\_\_

**Q7. If a and b are prime numbers, find whether each of the following is a perfect cube or not:**

Number	Perfect cube (Yes/No)
a. $a^4b^4$	_____
b. $a^9b^6$	_____
c. $a^3b^6$	_____
d. $a^8b^{125}$	_____

**Q8. Evaluate each of the following:**

a.  $\sqrt[3]{343} - \sqrt[3]{-9261} =$  \_\_\_\_\_

b.  $\sqrt[3]{3375} \times \sqrt[3]{125} =$  \_\_\_\_\_

c.  $\sqrt[3]{-8} + \sqrt[3]{-8000} =$  \_\_\_\_\_

**Q9. If the volume of a cubical box is  $3511.808 \text{ cm}^3$ , find the length of each side of the box.**

Answer: \_\_\_\_\_

**Q10.** Mrs Tandon brought 64 cubes of side 1 cm each for the Maths activity class. She asked the students to create solid cubes of different dimensions, as given in the table below. In the table, tick (☒) the cubes that the students would be able to make and cross out (☒) the ones which would not be possible.

Length of each side of cube	Possible/Not Possible
3 cm	
2 cm	
5 cm	
4 cm	

## Answers

1. a. negative; b.  $-x^3y^3$  c.  $\sqrt[3]{\frac{1}{b}}$ ; d. 6

Number	Prime factorisation	Perfect cube(Yes/No)
a. 1764	$7 \times 3 \times 7 \times 3 \times 2 \times 2$	No
b. 2744	$2 \times 2 \times 2 \times 7 \times 7 \times 7$	Yes
c. 3375	$3 \times 3 \times 3 \times 5 \times 5 \times 5$	Yes

3. a.  $23040 \times 75 = 17,28,000$ ; b.  $23040 \div 45 = 512$

4. a. 2.5; b. 21; c.  $5\frac{1}{5}$

5. 27 : 1

6.  $42.875 \text{ cm}^3$

7. a. No; b. Yes; c. Yes; d. No

8. a. 28; b. 75; c. -22

9. 15.2 cm

10.

Length of each side of cube	Possible/Not Possible
3 cm	✓
2 cm	✓
5 cm	✗
4 cm	✓