

CUBES AND CUBE ROOTS

Class VIII

Mathematics

Cubes & Cube Roots (MCQ).

1. Cube of an odd natural number is an odd natural number.

b) an odd natural number

2. Cube root of -125 is -5

$$\sqrt[3]{-125} = -\sqrt[3]{125}$$

$$a) -5 = \sqrt[3]{5 \times 5 \times 5}$$

3. Cube root of 8×64 is 8

d) 8

4. Cube root of the product of 2 negative numbers is a positive integer

a) a positive integer

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5. $\begin{array}{r|l} 2 & 32 \\ 2 & 16 \\ 2 & 8 \\ 2 & 4 \\ 2 & 2 \\ & 1 \end{array}$

$$\therefore 32 = \underline{2 \times 2 \times 2 \times 2 \times 2}$$

$\therefore 2$ should be multiplied by 32 to make it a perfect cube

c) 32

Ans 6 Cube of 1.5 is 3.375

a) 3.375

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Ans 7 Volume of cube = 24389 m³

$$\therefore (\text{side})^3 = \frac{24389}{216}$$

$$\text{side} = \sqrt[3]{\frac{24389}{216}}$$
$$= \sqrt[3]{24389} \div \sqrt[3]{216}$$

$$= \frac{29}{6} \text{ m.}$$

a) $\frac{29}{6} \text{ m}$

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Ans 8 Unit digit of the cube root of 13824 is 4

a) 4

Ans 9 $\sqrt[3]{1000} + \sqrt[3]{0.008} - \sqrt[3]{0.125}$

$$= \sqrt[3]{10 \times 10 \times 10} + \sqrt[3]{\frac{8}{1000}} - \sqrt[3]{\frac{125}{1000}}$$

$$= \sqrt[3]{10 \times 10 \times 10} + \sqrt[3]{8} - \sqrt[3]{125}$$

$$\sqrt[3]{1000} \quad \sqrt[3]{1000}$$

$$= \sqrt[3]{10 \times 10 \times 10} + \sqrt[3]{2 \times 2 \times 2} - \sqrt[3]{5 \times 5 \times 5}$$

$$\sqrt[3]{10 \times 10 \times 10} \quad \sqrt[3]{10 \times 10 \times 10}$$

$$= \frac{10 + 2}{10} - \frac{5}{10}$$

$$= 10 + 0.2 - 0.5$$

$$= 10.2 - 0.5$$

$$= 9.7$$

a) 9.7

Ans 10 $(-2)^3$

$$= -2 \times -2 \times 2$$

$$= -8$$

a) -8

Ans 11 $(27)^{\frac{1}{3}} + (0.008)^{\frac{1}{3}} + (0.064)^{\frac{1}{3}}$

$$= (3^3)^{\frac{1}{3}} + ((0.2)^3)^{\frac{1}{3}} + ((0.4)^3)^{\frac{1}{3}}$$

$$= 3 + 0.2 + 0.4$$

$$= 3.6$$

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a) 3.6

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$$\begin{array}{r}
 \text{Ans 12} \quad 2 \mid 8192 \\
 \quad \quad 2 \mid 4096 \\
 \quad \quad 2 \mid 2048 \\
 \quad \quad 2 \mid 1024 \\
 \quad \quad 2 \mid 512 \\
 \quad \quad 2 \mid 256 \\
 \quad \quad 2 \mid 128 \\
 \quad \quad 2 \mid 64 \\
 \quad \quad 2 \mid 32 \\
 \quad \quad 2 \mid 16 \\
 \quad \quad 2 \mid 8 \\
 \quad \quad 2 \mid 4 \\
 \quad \quad 2 \mid 2 \\
 \quad \quad \quad 1
 \end{array}$$

$$\begin{aligned}
 \therefore 8192 &= 2 \times 2 \times 2 \\
 &\times 2 \times 2 \times 2 \times 2 \times 2 \\
 &\times 2 \times 2 \times 2 \times 2 \\
 &\times 2
 \end{aligned}$$

$\therefore 8192$ should be divided by 2 to make it a perfect cube

$$8192 \div 2 = 4096$$

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a) 2

Ans 13 c) sometimes less, sometimes greater than x^2

$$\begin{aligned}
 \text{Ans 14} \quad \sqrt[3]{\frac{25 \times 27 \times 25 \times 8}{216 \times 1}} &= \sqrt[3]{\frac{5^3 \times 3^3 \times 2^3}{6^3}} \\
 &= \sqrt[3]{\frac{5^3 \times (3 \times 2)^3}{6^3}} \\
 &= \sqrt[3]{\frac{5^3 \times 6^3}{6^3}} \\
 &= \sqrt[3]{125} \\
 &= 5
 \end{aligned}$$

b) 5.

Ans 15 Let the numbers be $2x, 3x, 4x$
Sum of the cubes = 33957

$$\begin{aligned}\text{ATQ, } (2x)^3 + (3x)^3 + (4x)^3 &= 33957 \\ 8x^3 + 27x^3 + 64x^3 &= 33957 \\ 99x^3 &= 33957 \\ x^3 &= \frac{33957}{99}\end{aligned}$$

$$x^3 = 343$$

$$x = \sqrt[3]{343}$$

$$x = \sqrt[3]{7 \times 7 \times 7}$$

$$x = 7$$

$\therefore$ Numbers are $2(7), 3(7), 4(7)$
 $= 14, 21, 28$

a) 14, 21, 28

Ans 16

2	32
2	16
2	8
2	4
2	2
	1

$$32 = 2 \times 2 \times 2 \times 2 \times 2$$

$\therefore$ 32 should be divided by 4 to make it a perfect cube

$$\begin{aligned}32 \div 4 \\ = 8\end{aligned}$$

b) 4

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Ans 17 Cube of an even natural number is

a) an even natural number