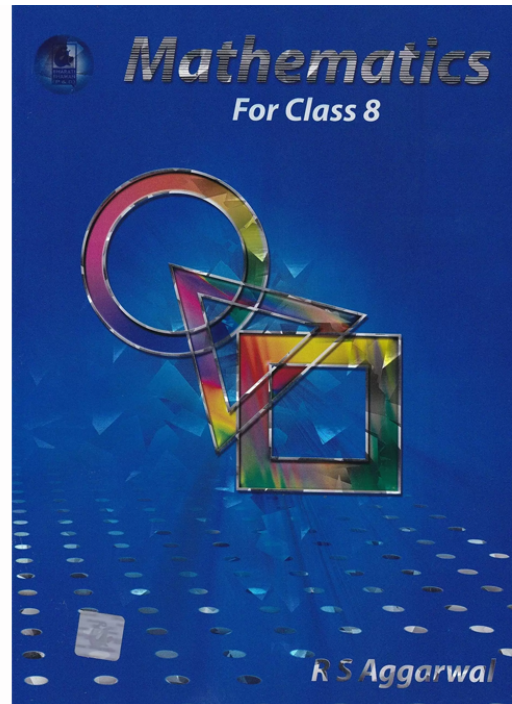


RS Aggarwal Solutions for Class 8 Maths Chapter 4–Cubes and Cube Roots

Class 8 - Chapter 4 Cubes and Cube Roots



For any clarifications or questions you can write to info@indcareer.com

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RS Aggarwal Solutions for Class 8 Maths Chapter 4–Cubes and Cube Roots

Class 8: Maths Chapter 4 solutions. Complete Class 8 Maths Chapter 4 Notes.

RS Aggarwal Solutions for Class 8 Maths Chapter 4–Cubes and Cube Roots

RS Aggarwal 8th Maths Chapter 4, Class 8 Maths Chapter 4 solutions

Exercise 4A

Q1

Answer :

(i) $(8)^3 = (8 \times 8 \times 8) = 512$.

Thus, the cube of 8 is 512.

(ii) $(15)^3 = (15 \times 15 \times 15) = 3375$.

Thus, the cube of 15 is 3375.

(iii) $(21)^3 = (21 \times 21 \times 21) = 9261$.

Thus, the cube of 21 is 9261.

(iv) $(60)^3 = (60 \times 60 \times 60) = 216000$.

Thus, the cube of 60 is 216000.

Q2

<https://www.indcareer.com/schools/rs-aggarwal-solutions-for-class-8-maths-chapter-4-cubes-and-cube-roots/>

Answer :

$$(i) (1.2)^3 = (1.2 \times 1.2 \times 1.2) = 1.728$$

Thus, the cube of 1.2 is 1.728.

$$(ii) (3.5)^3 = (3.5 \times 3.5 \times 3.5) = 42.875$$

Thus, the cube of 3.5 is 42.875.

$$(iii) (0.8)^3 = (0.8 \times 0.8 \times 0.8) = 0.512$$

Thus, the cube of 0.8 is 0.512.

$$(iv) (0.05)^3 = (0.05 \times 0.05 \times 0.05) = 0.000125$$

Thus, the cube of 0.05 is 0.000125.

Q3

Answer :

$$(i) \left(\frac{4}{7}\right)^3 = \left(\frac{4}{7} \times \frac{4}{7} \times \frac{4}{7}\right) = \left(\frac{64}{343}\right)$$

Thus, the cube of $\left(\frac{4}{7}\right)$ is $\left(\frac{64}{343}\right)$.

$$(ii) \left(\frac{10}{11}\right)^3 = \left(\frac{10}{11} \times \frac{10}{11} \times \frac{10}{11}\right) = \left(\frac{1000}{1331}\right)$$

Thus, the cube of $\left(\frac{10}{11}\right)$ is $\left(\frac{1000}{1331}\right)$.

$$(iii) \left(\frac{1}{15}\right)^3 = \left(\frac{1}{15} \times \frac{1}{15} \times \frac{1}{15}\right) = \left(\frac{1}{3375}\right)$$

Thus, the cube of $\left(\frac{1}{15}\right)$ is $\left(\frac{1}{3375}\right)$ $\left(1\frac{3}{10}\right)^3 = \left(\frac{13}{10}\right)^3 = \left(\frac{13}{10} \times \frac{13}{10} \times \frac{13}{10}\right) = \left(\frac{2197}{1000}\right)$

Thus, the cube of $\left(1\frac{3}{10}\right)$ is $\left(\frac{2197}{1000}\right)$.

Q4

<https://www.indcareer.com/schools/rs-aggarwal-solutions-for-class-8-maths-chapter-4-cubes-and-cube-roots/>



Answer :

(i) 125

Resolving 125 into prime factors:

$$125 = 5 \times 5 \times 5$$

Here, one triplet is formed, which is 5^3 . Hence, 125 can be expressed as the product of the triplets of 5.

Therefore, 125 is a perfect cube.

(ii) 243 is not a perfect cube.

(iii) 343

Resolving 125 into prime factors:

$$343 = 7 \times 7 \times 7$$

Here, one triplet is formed, which is 7^3 . Hence, 343 can be expressed as the product of the triplets of 7.

Therefore, 343 is a perfect cube.

(iv) 256 is not a perfect cube.

<https://www.indcareer.com/schools/rs-aggarwal-solutions-for-class-8-maths-chapter-4-cubes-and-cube-roots/>

(v) 8000

Resolving 8000 into prime factors:

$$8000 = 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 5 \times 5 \times 5$$

Here, three triplets are formed, which are 2^3 , 2^3 and 5^3 . Hence, 8000 can be expressed as the product of the triplets of 2, 2 and 5, i.e. $2^3 \times 2^3 \times 5^3 = 20^3$.

Therefore, 8000 is a perfect cube.

(vi) 9261

Resolving 9261 into prime factors:

$$9261 = 3 \times 3 \times 3 \times 7 \times 7 \times 7$$

Here, two triplets are formed, which are 3^3 and 7^3 . Hence, 9261 can be expressed as the product of the triplets of 3 and 7, i.e. $3^3 \times 7^3 = 21^3$.

Therefore, 9261 is a perfect cube.

(vii) 5324 is not a perfect cube.

(viii) 3375 .

Resolving 3375 into prime factors:

$$3375 = 3 \times 3 \times 3 \times 5 \times 5 \times 5.$$

Here, two triplets are formed, which are 3^3 and 5^3 . Hence, 3375 can be expressed as the product of the triplets of 3 and 5, i.e. $3^3 \times 5^3 = 15^3$.

Therefore, 3375 is a perfect cube.

Q5

Answer :

The cubes of even numbers are always even. Therefore, 216, 512 and 1000 are the cubes of even numbers.

$$216 = 2 \times 2 \times 2 \times 3 \times 3 \times 3 = 2^3 \times 3^3 = 6^3$$

$$512 = 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 = 2^3 \times 2^3 \times 2^3 = 8^3$$

$$1000 = 2 \times 2 \times 2 \times 5 \times 5 \times 5 = 2^3 \times 5^3 = 10^3$$

Q6

<https://www.indcareer.com/schools/rs-aggarwal-solutions-for-class-8-maths-chapter-4-cubes-and-cube-roots/>

Answer :

The cube of an odd number is an odd number. Therefore, 125, 343 and 9261 are the cubes of odd numbers.

$$125 = 5 \times 5 \times 5 = 5^3$$

$$343 = 7 \times 7 \times 7 = 7^3$$

$$9261 = 3 \times 3 \times 3 \times 7 \times 7 \times 7 = 3^3 \times 7^3 = 21^3$$

Q7

Answer :

1323

$$\begin{array}{r|l} 3 & 1323 \\ \hline 3 & 441 \\ \hline 3 & 147 \\ \hline 7 & 49 \\ \hline 7 & 7 \\ \hline & 1 \end{array}$$

$$1323 = 3 \times 3 \times 3 \times 7 \times 7.$$

To make it a perfect cube, it has to be multiplied by 7.

Q8

<https://www.indcareer.com/schools/rs-aggarwal-solutions-for-class-8-maths-chapter-4-cubes-and-cube-roots/>

Answer :

2560

2560 can be expressed as the product of prime factors in the following manner:

$$\begin{array}{r|l} 2 & 2560 \\ \hline 2 & 1280 \\ \hline 2 & 640 \\ \hline 2 & 320 \\ \hline 2 & 160 \\ \hline 2 & 80 \\ \hline 2 & 40 \\ \hline 2 & 20 \\ \hline 2 & 10 \\ \hline 5 & 5 \\ \hline & 1 \end{array}$$

$$2560 = 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 5$$

To make this a perfect square, we have to multiply it by 5×5 .

Therefore, 2560 should be multiplied by 25 so that the product is a perfect cube.

Q9

<https://www.indcareer.com/schools/rs-aggarwal-solutions-for-class-8-maths-chapter-4-cubes-and-cube-roots/>

Answer :

1600

1600 can be expressed as the product of prime factors in the following manner:

$$\begin{array}{r|l} 2 & 1600 \\ \hline 2 & 800 \\ \hline 2 & 400 \\ \hline 2 & 200 \\ \hline 2 & 100 \\ \hline 2 & 50 \\ \hline 5 & 25 \\ \hline 5 & 5 \\ \hline & 1 \end{array}$$

$$1600 = 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 5 \times 5$$

Therefore, to make the quotient a perfect cube, we have to divide 1600 by:

$$5 \times 5 = 25$$

Q10

Answer :

$$\begin{array}{r|l} 2 & 8788 \\ \hline 2 & 4394 \\ \hline 13 & 2197 \\ \hline 13 & 169 \\ \hline 13 & 13 \\ \hline & 1 \end{array}$$

8788

8788 can be expressed as the product of prime factors as $2 \times 2 \times 13 \times 13 \times 13$.

Therefore, 8788 should be divided by 4, i.e. (2×2) , so that the quotient is a perfect cube.

Ex 4B

Q1

<https://www.indcareer.com/schools/rs-aggarwal-solutions-for-class-8-maths-chapter-4-cubes-and-cube-roots/>

Answer :

$$(25)^3$$

Here, $a = 2$ and $b = 5$

Using the formula $a^3 + 3a^2b + 3ab^2 + b^3$:

4	4	25	25
$\times 2$	$\times 15$	$\times 6$	$\times 5$
8	60	150	125
$+7$	$+ 16$	$+ 12$	
15	76	162	

$$\therefore (25)^3 = 15625$$

Q2

Answer :

$$(47)^3$$

Here, $a = 4$ and $b = 7$

Using the formula $a^3 + 3a^2b + 3ab^2 + b^3$:

16	16	49	49
$\times 4$	$\times 21$	$\times 12$	$\times 7$
64	336	588	343
$+39$	$+ 62$	$+ 34$	
103	398	622	

$$\therefore (47)^3 = 103823$$

Q3

<https://www.indcareer.com/schools/rs-aggarwal-solutions-for-class-8-maths-chapter-4-cubes-and-cube-roots/>

Answer :

$$(68)^3$$

Here, $a = 6$ and $b = 8$

Using the formula $a^3 + 3a^2b + 3ab^2 + b^3$:

36 × 6	36 × 24	64 × 18	64 × 8
216 + 98	864 + 120	1152 + 51	512
314	984	1203	

$$\therefore (68)^3 = 314432$$

Q4

Answer :

$$(84)^3$$

Here, $a = 8$ and $b = 4$

Using the formula $a^3 + 3a^2b + 3ab^2 + b^3$:

64 × 8	64 × 12	16 × 24	16 × 4
512 + 80	768 + 39	384 + 6	64
592	807	390	

$$\therefore (84)^3 = 592704$$

Ex 4C

Q1

<https://www.indcareer.com/schools/rs-aggarwal-solutions-for-class-8-maths-chapter-4-cubes-and-cube-roots/>

Answer :

$$\sqrt[3]{64}$$

By prime factorisation:

$$\begin{aligned} 64 &= 2 \times 2 \times 2 \times 2 \times 2 \times 2 \\ &= (2 \times 2 \times 2) \times (2 \times 2 \times 2) \end{aligned}$$

$$\therefore \sqrt[3]{64} = \sqrt[3]{(2)^3 \times (2)^3} = (2 \times 2) = 4$$

Q2

Answer :

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

By prime factorisation:

$$\begin{aligned} 343 &= 7 \times 7 \times 7 \\ &= (7 \times 7 \times 7) \end{aligned}$$

$$\therefore \sqrt[3]{343} = \sqrt[3]{7^3} = 7$$

Q3

Answer :

$$\sqrt[3]{729}$$

By prime factorisation:

$$\begin{array}{r|l} 3 & 729 \\ \hline 3 & 243 \\ \hline 3 & 81 \\ \hline 3 & 27 \\ \hline 3 & 9 \\ \hline 3 & 3 \\ \hline & 1 \end{array}$$

$$\begin{aligned} 729 &= 3 \times 3 \times 3 \times 3 \times 3 \times 3 \\ &= (3 \times 3 \times 3) \times (3 \times 3 \times 3) \end{aligned}$$

$$\therefore \sqrt[3]{729} = (3 \times 3) = 9$$

Q4

Answer :

$$\sqrt[3]{1728}$$

By prime factorisation:

$$\begin{array}{r|l} 2 & 1728 \\ \hline 2 & 864 \\ \hline 2 & 432 \\ \hline 2 & 216 \\ \hline 2 & 108 \\ \hline 2 & 54 \\ \hline 3 & 27 \\ \hline 3 & 9 \\ \hline 3 & 3 \\ \hline & 1 \end{array}$$

$$\begin{aligned} 1728 &= 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 3 \times 3 \times 3 \\ &= (2 \times 2 \times 2) \times (2 \times 2 \times 2) \times (3 \times 3 \times 3) = 2^3 \times 2^3 \times 3^3 \end{aligned}$$

$$\therefore \sqrt[3]{1728} = (2 \times 2 \times 3) = 12$$

Q5

<https://www.indcareer.com/schools/rs-aggarwal-solutions-for-class-8-maths-chapter-4-cubes-and-cube-roots/>

Answer :

$$\sqrt[3]{9261}$$

By prime factorisation:

3	9261
3	3087
3	1029
7	343
7	49
7	7
	1

$$\begin{aligned} 9261 &= 3 \times 3 \times 3 \times 7 \times 7 \times 7 \\ &= (3 \times 3 \times 3) \times (7 \times 7 \times 7) = 3^3 \times 7^3 \end{aligned}$$

$$\therefore \sqrt[3]{9261} = (3 \times 7) = 21$$

Q6

Answer :

$$\sqrt[3]{4096}$$

By prime factorisation:

2	4096
2	2048
2	1024
2	512
2	256
2	128
2	64
2	32
2	16
2	8
2	4
2	2
	1

$$\begin{aligned} 4096 &= 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \\ &= (2 \times 2 \times 2) \times (2 \times 2 \times 2) \times (2 \times 2 \times 2) \times (2 \times 2 \times 2) \\ &= 2^3 \times 2^3 \times 2^3 \times 2^3 \end{aligned}$$

$$\therefore \sqrt[3]{4096} = (2 \times 2 \times 2 \times 2) = 16$$

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Q7**Answer :**

$$\sqrt[3]{8000}$$

By prime factorisation:

$$\begin{array}{r|l} 2 & 8000 \\ \hline 2 & 4000 \\ \hline 2 & 2000 \\ \hline 2 & 1000 \\ \hline 2 & 500 \\ \hline 2 & 250 \\ \hline 5 & 125 \\ \hline 5 & 25 \\ \hline 5 & 5 \\ \hline & 1 \end{array}$$

$$\begin{aligned} 8000 &= 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 5 \times 5 \times 5 \\ &= (2 \times 2 \times 2) \times (2 \times 2 \times 2) \times (5 \times 5 \times 5) \end{aligned}$$

$$\therefore \sqrt[3]{8000} = (2 \times 2 \times 5) = 20$$

Q8**Answer :**

$$\sqrt[3]{3375}$$

By prime factorisation:

$$\begin{array}{r|l} 5 & 3375 \\ \hline 5 & 675 \\ \hline 5 & 135 \\ \hline 3 & 27 \\ \hline 3 & 9 \\ \hline 3 & 3 \\ \hline & 1 \end{array}$$

$$\begin{aligned} 3375 &= 3 \times 3 \times 3 \times 5 \times 5 \times 5 \\ &= (3 \times 3 \times 3) \times (5 \times 5 \times 5) \end{aligned}$$

$$\therefore \sqrt[3]{3375} = (3 \times 5) = 15$$

Q9

<https://www.indcareer.com/schools/rs-aggarwal-solutions-for-class-8-maths-chapter-4-cubes-and-cube-roots/>

Answer :

$$\sqrt[3]{-216}$$

By prime factorisation:

$$\begin{array}{r|l} 2 & 216 \\ 2 & 108 \\ 2 & 54 \\ 3 & 27 \\ 3 & 9 \\ 3 & 3 \\ & 1 \end{array}$$

$$\begin{aligned} 216 &= 2 \times 2 \times 2 \times 3 \times 3 \times 3 \\ &= (2 \times 2 \times 2) \times (3 \times 3 \times 3) \end{aligned}$$

$$\sqrt[3]{-216} = -(2 \times 3) = -6$$

$$\therefore \sqrt[3]{-216} = -(\sqrt[3]{216}) = -6$$

Q10

<https://www.indcareer.com/schools/rs-aggarwal-solutions-for-class-8-maths-chapter-4-cubes-and-cube-roots/>

Answer :

$$\sqrt[3]{-512}$$

By prime factorisation:

$$\begin{array}{r|l} 2 & 512 \\ \hline 2 & 256 \\ \hline 2 & 128 \\ \hline 2 & 64 \\ \hline 2 & 32 \\ \hline 2 & 16 \\ \hline 2 & 8 \\ \hline 2 & 4 \\ \hline 2 & 2 \\ \hline & 1 \end{array}$$

$$\begin{aligned} \sqrt[3]{512} &= 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \\ &= (2 \times 2 \times 2) \times (2 \times 2 \times 2) \times (2 \times 2 \times 2) \\ \sqrt[3]{-512} &= -\sqrt[3]{(2 \times 2 \times 2)} = -8 \end{aligned}$$

$$\therefore \sqrt[3]{-512} = -(\sqrt[3]{512}) = -8$$

Q11

Answer :

$$\sqrt[3]{-1331}$$

By prime factorisation:

$$\sqrt[3]{1331} = \sqrt[3]{11 \times 11 \times 11}$$

$$\begin{array}{r|l} 11 & 1331 \\ \hline 11 & 121 \\ \hline 11 & 11 \\ \hline & 1 \end{array}$$

$$\begin{aligned} \sqrt[3]{-1331} &= -(11 \times 11 \times 11)^{\frac{1}{3}} = -11 \\ \therefore \sqrt[3]{-1331} &= -(\sqrt[3]{1331}) = -11 \end{aligned}$$

Q12

<https://www.indcareer.com/schools/rs-aggarwal-solutions-for-class-8-maths-chapter-4-cubes-and-cube-roots/>

Answer :

$$\sqrt[3]{\frac{27}{64}}$$

By prime factorisation:

$$\begin{array}{r|l} 3 & 27 \\ \hline 3 & 9 \\ \hline 3 & 3 \\ \hline & 1 \end{array} \qquad \begin{array}{r|l} 2 & 64 \\ \hline 2 & 32 \\ \hline 2 & 16 \\ \hline 2 & 8 \\ \hline 2 & 4 \\ \hline 2 & 2 \\ \hline & 1 \end{array}$$

$$\sqrt[3]{\frac{27}{64}} = \frac{\sqrt[3]{27}}{\sqrt[3]{64}} = \frac{\sqrt[3]{(3 \times 3 \times 3)}}{\sqrt[3]{(2 \times 2 \times 2) \times (2 \times 2 \times 2)}} = \frac{\sqrt[3]{(3 \times 3 \times 3)}}{\sqrt[3]{(4 \times 4 \times 4)}} = \frac{3}{4}$$

$$\therefore \sqrt[3]{\frac{27}{64}} = \frac{3}{4}$$

Q13

Answer :

$$\sqrt[3]{\frac{125}{216}}$$

By prime factorisation:

$$\begin{array}{r|l} 5 & 125 \\ \hline 5 & 25 \\ \hline 5 & 5 \\ \hline & 1 \end{array} \qquad \begin{array}{r|l} 2 & 216 \\ \hline 2 & 108 \\ \hline 2 & 54 \\ \hline 3 & 27 \\ \hline 3 & 9 \\ \hline 3 & 3 \\ \hline & 1 \end{array}$$

$$\sqrt[3]{\frac{125}{216}} = \frac{\sqrt[3]{5 \times 5 \times 5}}{\sqrt[3]{(2 \times 2 \times 2) \times (3 \times 3 \times 3)}} = \frac{\sqrt[3]{5 \times 5 \times 5}}{\sqrt[3]{(6 \times 6 \times 6)}} = \frac{5}{6}$$

$$\therefore \sqrt[3]{\frac{125}{216}} = \frac{5}{6}$$

Q14

<https://www.indcareer.com/schools/rs-aggarwal-solutions-for-class-8-maths-chapter-4-cubes-and-cube-roots/>

Answer :

$$\sqrt[3]{\frac{-27}{125}}$$

$$\begin{array}{r|l} 3 & 27 \\ \hline 3 & 9 \\ \hline 3 & 3 \\ \hline & 1 \end{array}$$

$$\begin{array}{r|l} 5 & 125 \\ \hline 5 & 25 \\ \hline 5 & 5 \\ \hline & 1 \end{array}$$

By factorisation:

$$\sqrt[3]{\frac{27}{125}} = \sqrt[3]{\frac{3 \times 3 \times 3}{5 \times 5 \times 5}}$$

$$\therefore \sqrt[3]{\frac{-27}{125}} = \frac{-3}{5}$$

Q15

Answer :

$$\sqrt[3]{\frac{-64}{343}}$$

On factorisation:

$$\begin{array}{r|l} 2 & 64 \\ \hline 2 & 32 \\ \hline 2 & 16 \\ \hline 2 & 8 \\ \hline 2 & 4 \\ \hline 2 & 2 \\ \hline & 1 \end{array}$$

$$\begin{array}{r|l} 7 & 343 \\ \hline 7 & 49 \\ \hline 7 & 7 \\ \hline & 1 \end{array}$$

$$\sqrt[3]{\frac{64}{343}} = \sqrt[3]{\frac{2 \times 2 \times 2 \times 2 \times 2 \times 2}{7 \times 7 \times 7}}$$

$$\therefore \sqrt[3]{\frac{-64}{343}} = \frac{-4}{7}$$

Q16

<https://www.indcareer.com/schools/rs-aggarwal-solutions-for-class-8-maths-chapter-4-cubes-and-cube-roots/>

Answer :

$$\begin{aligned}\sqrt[3]{64 \times 729} \\ \sqrt[3]{64 \times 729} &= \sqrt[3]{64} \times \sqrt[3]{729} \\ &= \sqrt[3]{4 \times 4 \times 4} \times \sqrt[3]{(3 \times 3 \times 3) \times (3 \times 3 \times 3)} \\ &= \sqrt[3]{4 \times 4 \times 4} \times \sqrt[3]{(9 \times 9 \times 9)} \\ \sqrt[3]{64 \times 729} &= (4) \times (9) = 36\end{aligned}$$

Q17

Answer :

$$\sqrt[3]{\frac{729}{1000}}$$

3	729
3	243
3	81
3	27
3	9
3	3
	1

2	1000
2	500
2	250
5	125
5	25
5	5
	1

On factorisation:

$$\begin{aligned}\sqrt[3]{\frac{729}{1000}} &= \frac{\sqrt[3]{(3 \times 3 \times 3) \times (3 \times 3 \times 3)}}{\sqrt[3]{(2 \times 2 \times 2) \times (5 \times 5 \times 5)}} = \frac{\sqrt[3]{9 \times 9 \times 9}}{\sqrt[3]{10 \times 10 \times 10}} \\ \sqrt[3]{\frac{729}{1000}} &= \frac{9}{10}\end{aligned}$$

Q18

Answer :

$$\sqrt[3]{\frac{-512}{343}}$$

By factorisation:

$$\begin{array}{r|l} 2 & 512 \\ \hline 2 & 256 \\ \hline 2 & 128 \\ \hline 2 & 64 \\ \hline 2 & 32 \\ \hline 2 & 16 \\ \hline 2 & 8 \\ \hline 2 & 4 \\ \hline 2 & 2 \\ \hline & 1 \end{array}$$

$$\begin{array}{r|l} 7 & 343 \\ \hline 7 & 49 \\ \hline 7 & 7 \\ \hline & 1 \end{array}$$

$$\begin{array}{l} \sqrt[3]{\frac{512}{343}} \quad \sqrt[3]{\frac{8 \times 8 \times 8}{7 \times 7 \times 7}} \\ \sqrt[3]{\frac{-512}{343}} \quad \frac{-8}{7} \end{array}$$

Ex 4D

Q1

<https://www.indcareer.com/schools/rs-aggarwal-solutions-for-class-8-maths-chapter-4-cubes-and-cube-roots/>

Answer :

(a)

141 is not a perfect cube.

(b)

294 is not a perfect cube.

(c) (✓)

216 is a perfect cube.

$$216 = (2 \times 2 \times 2) \times (3 \times 3 \times 3) = (2^3) \times (3^3) = 6^3$$

(d)

496 is not a perfect cube.

Q2

Answer :

(a)

$$1152 = 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 3 \times 3 = (2)^3 \times (2)^3 \times (2 \times 3 \times 3).$$

Hence, 1152 is not a perfect cube.

(b) (✓)

$$1331 = 11 \times 11 \times 11 = (11)^3$$

Hence, 1331 is a perfect cube.

(c)

$$2016 = 2 \times 2 \times 2 \times 2 \times 2 \times 3 \times 3 \times 7 = (2)^3 \times 2 \times 2 \times 3 \times 3 \times 7$$

Hence, 2016 is not a perfect cube.

(d)

739 is not a perfect cube.

Q3

<https://www.indcareer.com/schools/rs-aggarwal-solutions-for-class-8-maths-chapter-4-cubes-and-cube-roots/>

Answer :

(c) 8

$$\begin{aligned}\sqrt[3]{512} &= \sqrt[3]{2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2} = \sqrt[3]{(2 \times 2 \times 2) \times (2 \times 2 \times 2) \times (2 \times 2 \times 2)} \\ \sqrt[3]{512} &= \sqrt[3]{(2)^3 \times (2)^3 \times (2)^3} = 8\end{aligned}$$

Hence, the cube root of 512 is 8.

Q4

Answer :

(c) 20

$$\begin{aligned}\sqrt[3]{125 \times 64} &= \sqrt[3]{125} \times \sqrt[3]{64} = \sqrt[3]{5 \times 5 \times 5} \times \sqrt[3]{2 \times 2 \times 2 \times 2 \times 2 \times 2} \\ \sqrt[3]{125 \times 64} &= \sqrt[3]{(5)^3} \times \sqrt[3]{(2)^3 \times (2)^3} = \sqrt[3]{(5)^3} \times \sqrt[3]{(4)^3} \\ \sqrt[3]{125 \times 64} &= 5 \times 4 = 20\end{aligned}$$

Hence, the cube root of $\sqrt[3]{125 \times 64}$ is 20.

Q5

Answer :

(b) $\frac{4}{7}$

$$\begin{aligned}\sqrt[3]{\frac{64}{343}} &= \frac{\sqrt[3]{64}}{\sqrt[3]{343}} = \frac{\sqrt[3]{4 \times 4 \times 4}}{\sqrt[3]{7 \times 7 \times 7}} = \frac{\sqrt[3]{(4)^3}}{\sqrt[3]{(7)^3}} \\ \sqrt[3]{\frac{64}{343}} &= \frac{4}{7} \\ \therefore \sqrt[3]{\frac{64}{343}} &= \frac{4}{7}\end{aligned}$$

Q6

<https://www.indcareer.com/schools/rs-aggarwal-solutions-for-class-8-maths-chapter-4-cubes-and-cube-roots/>

Answer :

$$\begin{aligned}
 (b) \quad & \frac{-8}{9} \\
 & \sqrt[3]{\frac{-512}{729}} = \frac{\sqrt[3]{-512}}{\sqrt[3]{729}} = \frac{\sqrt[3]{(-8) \times (-8) \times (-8)}}{\sqrt[3]{9 \times 9 \times 9}} = \frac{\sqrt[3]{(-8)^3}}{\sqrt[3]{(9)^3}} \\
 & \sqrt[3]{\frac{-512}{729}} = \frac{-8}{9} \\
 \therefore \quad & \sqrt[3]{\frac{-512}{729}} = \frac{-8}{9}
 \end{aligned}$$

Q7

Answer :

(c) 9

$$\begin{array}{r|l}
 2 & 648 \\
 \hline
 2 & 324 \\
 \hline
 2 & 162 \\
 \hline
 3 & 81 \\
 \hline
 3 & 27 \\
 \hline
 3 & 9 \\
 \hline
 3 & 3 \\
 \hline
 & 1
 \end{array}$$

$$648 = 2 \times 2 \times 2 \times 3 \times 3 \times 3 \times 3 = (2)^3 \times (3)^3 \times 3$$

Therefore, to get a perfect cube, we need to multiply 648 by 9, i.e. (3×3) .

Q8

Answer :

(a) 3

$$\begin{array}{r}
 2 \overline{) 1536} \\
 \underline{2 \ 768} \\
 2 \ 384 \\
 \underline{2 \ 192} \\
 2 \ 96 \\
 \underline{2 \ 48} \\
 2 \ 24 \\
 \underline{2 \ 12} \\
 2 \ 6 \\
 \underline{3 \ 1} \\
 0
 \end{array}$$

$$1536 = 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 3 = (2)^3 \times (2)^3 \times (2)^3 \times 3$$

Therefore, to get a perfect cube, we need to divide 1536 by 3.

Q9

Answer :

$$\begin{aligned}
 \text{(c) } 2 \frac{197}{1000} \\
 \left(1 \frac{3}{10}\right)^3 &= \left(\frac{13}{10}\right)^3 = \frac{(13)^3}{(10)^3} = \frac{(13 \times 13 \times 13)}{(10 \times 10 \times 10)} \\
 \left(1 \frac{3}{10}\right)^3 &= \frac{2197}{1000} = 2 \frac{197}{1000}
 \end{aligned}$$

$$\therefore \left(1 \frac{3}{10}\right)^3 = 2 \frac{197}{1000}$$

Q10

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Answer :

(c) 0.512

$$(0.8)^3 = (0.8) \times (0.8) \times (0.8) = 0.512$$

$$\therefore (0.8)^3 = 0.512$$



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- Chapter 2–Exponents
- Chapter 3–Squares and Square Roots
- Chapter 4–Cubes and Cube Roots
- Chapter 5–Playing with Numbers
- Chapter 6–Operations on Algebraic Expressions
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He was born on January 2, 1946 in a village of Delhi. He graduated from Kirori Mal College, University of Delhi. After completing his M.Sc. in Mathematics in 1969, he joined N.A.S. College, Meerut, as a lecturer. In 1976, he was awarded a fellowship for 3 years and joined the University of Delhi for his Ph.D. Thereafter, he was promoted as a reader in N.A.S. College, Meerut. In 1999, he joined M.M.H. College, Ghaziabad, as a reader and took voluntary retirement in 2003. He has authored more than 75 titles ranging from Nursery to M. Sc. He has also written books for competitive examinations right from the clerical grade to the I.A.S. level.

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