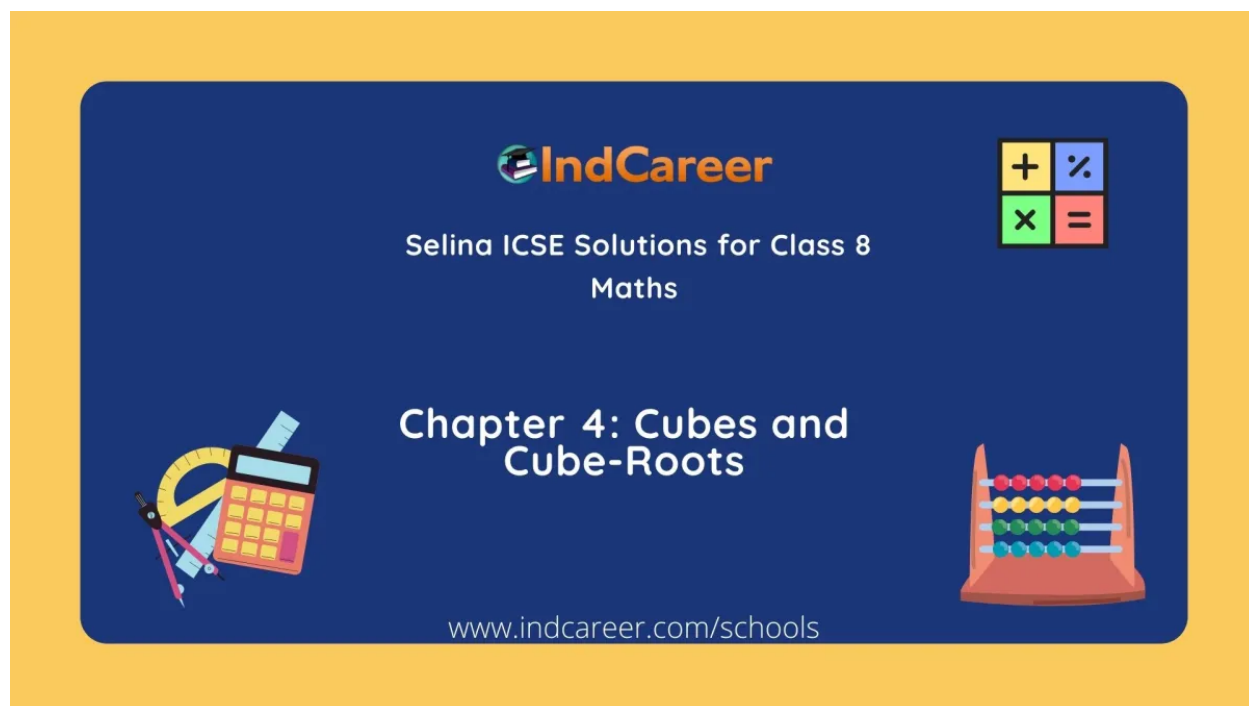


Selina Class 8 ICSE Solutions Mathematics :

Chapter 4- Cubes and Cube-Roots



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

Postal Address

IndCareer.com, 52, Shilpa Nagar, Somalwada Nagpur - 440015
Maharashtra, India

WhatsApp: +91 9561 204 888, **Website:** <https://www.indcareer.com>

<https://www.indcareer.com/schools/selina-class-8-icse-solutions-mathematics-chapter-4-cubes-and-cube-roots/>



Selina Class 8 ICSE Solutions Mathematics :

Chapter 4- Cubes and Cube-Roots

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

Selina Class 8 ICSE Solutions Mathematics : Chapter 4- Cubes and Cube-Roots

Selina 8th Maths Chapter 4, Class 8 Maths Chapter 4 solutions

Exercise 4A

Question 1.

Find the cube of :

(i) 7

(ii) 11

(iii) 16

(iv) 23

(v) 31

(vi) 42

(vii) 54

Solution:

<https://www.indcareer.com/schools/selina-class-8-icse-solutions-mathematics-chapter-4-cubes-and-cube-roots/>

(i) $(7)^3 = 7 \times 7 \times 7 = 343$

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

(iii) $(16)^3 = 16 \times 16 \times 16 = 4096$

(iv) $(23)^3 = 23 \times 23 \times 23 = 12167$

(v) $(31)^3 = 31 \times 31 \times 31 = 29791$

(vi) $(42)^3 = 42 \times 42 \times 42 = 74088$

(vii) $(54)^3 = 54 \times 54 \times 54 = 157464$

Question 2.

Find which of the following are perfect cubes :

(i) 243

(ii) 588

(iii) 1331

(iv) 24000

(v) 1728

(vi) 1938

Solution:

<https://www.indcareer.com/schools/selina-class-8-icse-solutions-mathematics-chapter-4-cubes-and-cube-roots/>

(i) 243

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

$$\therefore 243 = 3 \times 3 \times 3 \times 3$$

$$= (3 \times 3 \times 3) \times 3$$

$$= 3^3 \times 3$$

$\therefore$ 297 is not a perfect cube.

(ii) 588

$$\begin{array}{r|l} 2 & 588 \\ \hline 2 & 294 \\ \hline 7 & 147 \\ \hline 7 & 21 \\ \hline 3 & 3 \\ \hline & 1 \end{array}$$

$$588 = 2 \times 2 \times 7 \times 7 \times 3$$

$\therefore$ 588 is not a perfect cube.

(iii) 1331

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

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

$\therefore 1331$ is a perfect cube.

(iv) 24000

$$\therefore 24000 = 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 3 \times 5 \times 5 \times 5$$

$$= (2)^3 \times (2)^3 \times (5)^3 \times 3$$

$\therefore 24000$ is not a perfect cube.

(v) 1728

2	1728
2	864
2	432
2	216
2	108
2	54
3	27
3	9
3	3
	1

$$\therefore 1728 = 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 3 \times 3 \times 3$$

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

$\therefore 1728$ is a perfect cube.

(vi) 1938

2	1938
3	936
17	323
19	19
	1

$$1938 = 2 \times 3 \times 17 \times 19$$

1938 is not a perfect cube.

Question 3.

<https://www.indcareer.com/schools/selina-class-8-icse-solutions-mathematics-chapter-4-cubes-and-cube-roots/>

Find the cubes of :

(i) 2.1

(ii) 0.4

(iii) 1.6

(iv) 2.5

(v) 0.12

(vi) 0.02

(vii) 0.8

Solution:

$$(i) 2.1 = (2.1)^3 = \left(\frac{21}{10}\right)^3 = \frac{21 \times 21 \times 21}{10 \times 10 \times 10}$$
$$= \frac{9261}{1000} = 9.261$$

$$(ii) 0.4 = (0.4)^3 = \left(\frac{4}{10}\right)^3 = \frac{4 \times 4 \times 4}{10 \times 10 \times 10}$$
$$= \frac{64}{1000} = 0.064$$

$$(iii) 1.6 = (1.6)^3 = \left(\frac{16}{10}\right)^3 = \frac{16 \times 16 \times 16}{10 \times 10 \times 10}$$
$$= \frac{4096}{1000} = 4.096$$

$$(iv) 2.5 = (2.5)^3 = \left(\frac{25}{10}\right)^3 = \frac{25 \times 25 \times 25}{10 \times 10 \times 10}$$
$$= \frac{15625}{1000} = 15.625$$

$$\begin{aligned} \text{(v)} \quad 0.12 &= (0.12)^3 = \left(\frac{12}{100}\right)^3 = \frac{12 \times 12 \times 12}{100 \times 100 \times 100} \\ &= \frac{1728}{1000000} = 0.001728 \end{aligned}$$

$$\begin{aligned} \text{(vi)} \quad 0.02 &= (0.02)^3 = \left(\frac{2}{100}\right)^3 = \frac{2 \times 2 \times 2}{100 \times 100 \times 100} \\ &= \frac{8}{1000000} = 0.000008 \end{aligned}$$

$$\begin{aligned} \text{(vii)} \quad 0.8 &= (0.8)^3 = \left(\frac{8}{10}\right)^3 = \frac{8 \times 8 \times 8}{10 \times 10 \times 10} \\ &= \frac{512}{1000} = 0.512 \end{aligned}$$

Question 4.

Find the cubes of :

(i) $\frac{3}{7}$

(ii) $\frac{8}{9}$

(iii) $\frac{10}{13}$

(iv) $1\frac{2}{7}$

(v) $2\frac{1}{2}$

Solution:

<https://www.indcareer.com/schools/selina-class-8-icse-solutions-mathematics-chapter-4-cubes-and-cube-roots/>

$$(i) \frac{3}{7} = \left(\frac{3}{7}\right)^3 = \frac{3 \times 3 \times 3}{7 \times 7 \times 7} = \frac{27}{343}$$

$$(ii) \frac{8}{9} = \left(\frac{8}{9}\right)^3 = \frac{8 \times 8 \times 8}{9 \times 9 \times 9} = \frac{512}{729}$$

$$(iii) \frac{10}{13} = \left(\frac{10}{13}\right)^3 = \frac{10 \times 10 \times 10}{13 \times 13 \times 13} = \frac{1000}{2197}$$

$$(iv) 1\frac{2}{7} = \left(1\frac{2}{7}\right)^3 = \left(\frac{1 \times 7 + 2}{7}\right)^3 = \left(\frac{9}{7}\right)^3$$
$$= \frac{9 \times 9 \times 9}{7 \times 7 \times 7} = \frac{729}{343} = 2\frac{43}{343}$$

$$(v) 2\frac{1}{2} = \left(2\frac{1}{2}\right)^3 = \left(\frac{5}{2}\right)^3$$
$$= \frac{5 \times 5 \times 5}{2 \times 2 \times 2} = \frac{125}{8} = 15\frac{5}{8}$$

Question 5.

Find the cubes of :

(i) -3

(ii) -7

(iii) -12

(iv) -18

(v) -25

(vi) -30

<https://www.indcareer.com/schools/selina-class-8-icse-solutions-mathematics-chapter-4-cubes-and-cube-roots/>

(vii) -50

Solution:

$$(i) -3 = (-3)^3 = -3 \times -3 \times -3 \\ = -(3 \times 3 \times 3) = -27$$

$$(ii) -7 = (-7)^3 = -7 \times -7 \times -7 \\ = -(7 \times 7 \times 7) = -343$$

$$(iii) -12 = (-12)^3 = -12 \times -12 \times -12 \\ = -(12 \times 12 \times 12) = -1728$$

$$(iv) -18 = (-18)^3 = -18 \times -18 \times -18 \\ = -(18 \times 18 \times 18) = -5832$$

$$(v) -25 = (-25)^3 = -25 \times -25 \times -25 \\ = -(25 \times 25 \times 25) = -15625$$

$$(vi) -30 = (-30)^3 = -30 \times -30 \times -30 \\ = -(30 \times 30 \times 30) = -27000$$

$$(vii) -50 = (-50)^3 = -50 \times -50 \times -50 \\ = -(50 \times 50 \times 50) = -125000$$

Question 6.

Which of the following are cubes of:

- (i) an even number
- (ii) an odd number

216, 729, 3375, 8000, 125, 343, 4096 and 9261.

Solution:

<https://www.indcareer.com/schools/selina-class-8-icse-solutions-mathematics-chapter-4-cubes-and-cube-roots/>

$$\therefore 216 = 2 \times 2 \times 2 \times 3 \times 3 \times 3$$

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

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

$$\therefore 729 = 3 \times 3 \times 3 \times 3 \times 3 \times 3$$

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

$$= (3)^3 \times (3)^3 = (9)^3$$

$$\therefore 3375 = 5 \times 5 \times 5 \times 3 \times 3 \times 3$$

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

$$= (5)^3 \times (3)^3 = (15)^3$$

$$\therefore 8000 = 20 \times 20 \times 20 = (20)^3$$

$$\begin{array}{r|l} 20 & 8000 \\ \hline 20 & 400 \\ \hline 20 & 20 \\ \hline & 1 \end{array}$$

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

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

$$\therefore 343 = 7 \times 7 \times 7 = (7)^3$$

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

$$\therefore 4096 = 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \\ \times 2 \times 2 \times 2$$

$$\therefore 4096 = 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \\ \times 2 \times 2 \times 2$$

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

$$= (2)^3 \times (2)^3 \times (2)^3 \times (2)^3 = (16)^3$$

(i) Cubes of an even number are 216, 8000, 4096.

(ii) Cubes of an odd number are 729, 3375, 125, 343, 9261.

Question 7.

Find the least number by which 1323 must be multiplied so that the product is a perfect cube.

Solution:

The prime factor of 1323 are $= 3 \times 3 \times 3 \times 7 \times 7$

$$= (3 \times 3 \times 3) \times 7 \times 7$$

Clearly, 1323 must be multiplied by 7.

Question 8.

Find the smallest number by which 8768 must be divided so that the quotient is a perfect cube.

Solution:

<https://www.indcareer.com/schools/selina-class-8-icse-solutions-mathematics-chapter-4-cubes-and-cube-roots/>

....

The prime factor of 8768 are

$$\begin{array}{r|l}
 2 & 8768 \\
 \hline
 2 & 4384 \\
 \hline
 2 & 2192 \\
 \hline
 2 & 1096 \\
 \hline
 2 & 548 \\
 \hline
 2 & 274 \\
 \hline
 2 & 137 \\
 \hline
 137 & 137 \\
 \hline
 & 1
 \end{array}$$

$$= 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 137$$

$$= (2 \times 2 \times 2) \times (2 \times 2 \times 2) \times 137$$

Clearly, 8768 must be divided by 137.

Question 9.

Find the smallest number by which 27783 be multiplied to get a perfect square number.

Solution:

$$\begin{array}{r|l}
 3 & 27783 \\
 \hline
 3 & 9261 \\
 \hline
 3 & 3087 \\
 \hline
 3 & 1029 \\
 \hline
 7 & 343 \\
 \hline
 7 & 49 \\
 \hline
 7 & 7 \\
 \hline
 & 1
 \end{array}$$

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

$$= (3 \times 3 \times 3) \times (7 \times 7 \times 7) \times 3$$

Clearly, 27783 must be multiplied by 3×3

$$= 9$$

Question 10.

With what least number must 8640 be divided so that the quotient is a perfect cube?

Solution:

<https://www.indcareer.com/schools/selina-class-8-icse-solutions-mathematics-chapter-4-cubes-and-cube-roots/>

The prime factors of 8640 are

$$\begin{array}{r|l} 2 & 8640 \\ \hline 2 & 4320 \\ \hline 2 & 2160 \\ \hline 2 & 540 \\ \hline 2 & 270 \\ \hline 3 & 135 \\ \hline 3 & 45 \\ \hline 3 & 15 \\ \hline 5 & 5 \\ \hline & 1 \end{array}$$

$$= 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 3 \times 3 \times 3 \times 5$$

$$= (2 \times 2 \times 2) \times (2 \times 2 \times 2) \times (3 \times 3 \times 3) \times 5$$

Clearly, 8640 must be divided by 5.

Question 11.

Which is the smallest number that must be multiplied to 77175 to make it a perfect cube?

Solution:

<https://www.indcareer.com/schools/selina-class-8-icse-solutions-mathematics-chapter-4-cubes-and-cube-roots/>

The prime factors of 77175 are

$$\begin{array}{r|l} 3 & 77175 \\ \hline 3 & 25725 \\ \hline 5 & 8575 \\ \hline 5 & 1715 \\ \hline 7 & 343 \\ \hline 7 & 49 \\ \hline 7 & 7 \\ \hline & 1 \end{array}$$

$$= 3 \times 3 \times 5 \times 5 \times 7 \times 7 \times 7$$

$$= (7 \times 7 \times 7) \times 3 \times 3 \times 5 \times 5$$

Clearly, 77175 must be multiplied by 3×5
 $= 15$

Exercise 4B

Question 1.

Find the cube-roots of :

(i) 64

(ii) 343

(iii) 729

(iv) 1728

(v) 9261

(vi) 4096

(vii) 8000

(viii) 3375

Solution:

<https://www.indcareer.com/schools/selina-class-8-icse-solutions-mathematics-chapter-4-cubes-and-cube-roots/>

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

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

$$(ii) 343 = \sqrt[3]{343} = 7 \times 7 \times 7 = 7$$

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

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

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

$$\begin{aligned}(iv) \quad 1728 &= \sqrt[3]{1728} = (2 \times 2 \times 2) \times (2 \times 2 \times 2) \\ &\times (3 \times 3 \times 3) \\ &= 2 \times 2 \times 3 = 12.\end{aligned}$$

2		1728
2		864
2		432
2		216
2		108
2		54
3		27
3		9
3		3
		1

$$\begin{aligned}(v) \quad 9261 &= \sqrt[3]{9261} = (3 \times 3 \times 3) \times (7 \times 7 \times 7) \\ &= 3 \times 7 = 21\end{aligned}$$

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

$$\begin{aligned} \text{(vi)} \quad 4096 &= \sqrt[3]{4096} = (2 \times 2 \times 2) \times (2 \times 2 \times 2) \\ &\times (2 \times 2 \times 2) \times (2 \times 2 \times 2) \\ &= 2 \times 2 \times 2 \times 2 = 16 \end{aligned}$$

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

$$\begin{aligned} \text{(vii)} \quad 8000 &= \sqrt[3]{8000} = (4 \times 4 \times 4) \times (5 \times 5 \times 5) \\ &= 4 \times 5 = 20 \end{aligned}$$

4	8000
4	2000
4	500
5	125
5	25
5	5
	1

$$\begin{aligned} \text{(viii)} \quad 3375 &= \sqrt[3]{3375} = (5 \times 5 \times 5) \times (3 \times 3 \times 3) \\ &= 5 \times 3 = 15 \end{aligned}$$

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

Question 2.

Find the cube-roots of :

(i) $\sqrt[3]{\frac{27}{64}}$

(ii) $\sqrt[3]{\frac{125}{216}}$

(iii) $\sqrt[3]{\frac{343}{512}}$

(iv) 64×729

(v) 64×27

(vi) 729×8000

(vii) 3375×512

Solution:

<https://www.indcareer.com/schools/selina-class-8-icse-solutions-mathematics-chapter-4-cubes-and-cube-roots/>

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

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

$$(iii) \frac{343}{512} = \sqrt[3]{\frac{343}{512}} = \frac{\sqrt{7 \times 7 \times 7}}{\sqrt{8 \times 8 \times 8}} = \frac{7}{8}$$

$$(iv) 64 \times 729 = \sqrt[3]{64 \times 729} \\ = \sqrt{4 \times 4 \times 4 \times 9 \times 9 \times 9} = 4 \times 9 = 36$$

$$(v) 64 \times 27 = \sqrt[3]{64 \times 27} \\ = \sqrt{4 \times 4 \times 4 \times 3 \times 3 \times 3} = 4 \times 3 = 12$$

$$(vi) 729 \times 8000 = \sqrt[3]{729 \times 8000} \\ = \sqrt{9 \times 9 \times 9 \times 20 \times 20 \times 20} \\ = 9 \times 20 = 180$$

$$(vii) 3375 \times 512 = \sqrt[3]{3375 \times 512} \\ = \sqrt{15 \times 15 \times 15 \times 8 \times 8 \times 8} \\ = 15 \times 8 = 120$$

Question 3.

Find the cube-roots of :

(i) -216

(ii) -512

(iii) -1331

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

<https://www.indcareer.com/schools/selina-class-8-icse-solutions-mathematics-chapter-4-cubes-and-cube-roots/>

(v) $\frac{-64}{343}$

(vi) $\frac{-512}{343}$

(vii) -2197

(viii) -5832

(ix) -2744000

Solution:

<https://www.indcareer.com/schools/selina-class-8-icse-solutions-mathematics-chapter-4-cubes-and-cube-roots/>

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

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

$$(iii) -1331 = \sqrt[3]{-1331} \\ = \sqrt{-11 \times -11 \times -11} = -11$$

$$(iv) -\frac{27}{125} = -\frac{\sqrt[3]{27}}{\sqrt[3]{125}} = -\sqrt[3]{\frac{3 \times 3 \times 3}{5 \times 5 \times 5}} = -\frac{3}{5}$$

$$(v) \frac{-64}{343} = \frac{\sqrt[3]{-64}}{\sqrt[3]{343}} = \frac{\sqrt[3]{-4 \times -4 \times -4}}{\sqrt[3]{7 \times 7 \times 7}} = \frac{-4}{7}$$

$$(vi) -\frac{512}{343} = -\sqrt[3]{\frac{512}{343}} = -\sqrt[3]{\frac{8 \times 8 \times 8}{7 \times 7 \times 7}} = -\frac{8}{7}$$

$$(vii) -2197 = \sqrt[3]{-2197}$$

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

$$= \sqrt[3]{-13 \times -13 \times -13} = -13$$

$$(viii) -5832 = \sqrt[3]{-5832}$$

$$\begin{array}{r|l}
 2 & 5832 \\
 \hline
 2 & 2916 \\
 \hline
 2 & 1458 \\
 \hline
 3 & 729 \\
 \hline
 3 & 243 \\
 \hline
 3 & 81 \\
 \hline
 3 & 27 \\
 \hline
 3 & 9 \\
 \hline
 3 & 3 \\
 \hline
 & 1
 \end{array}$$

$$\begin{aligned}
 &= \sqrt{-2 \times -2 \times -2 \times -3 \times -3 \times -3 \times -3 \times -3 \times -3} \\
 &= -2 \times -3 \times -3 = -18
 \end{aligned}$$

$$(ix) \sqrt[3]{-2744000} = \sqrt[3]{-2744000}$$

$$\begin{array}{r|l}
 2 & 2744000 \\
 \hline
 2 & 1372000 \\
 \hline
 2 & 686000 \\
 \hline
 7 & 343000 \\
 \hline
 7 & 49000 \\
 \hline
 7 & 7000 \\
 \hline
 10 & 1000 \\
 \hline
 10 & 100 \\
 \hline
 10 & 10 \\
 \hline
 & 1
 \end{array}$$

$$\begin{aligned}
 &= \sqrt{-2 \times -2 \times -2 \times -7 \times -7 \times -7} \\
 &= \sqrt{-10 \times -10 \times -10} \\
 &= -2 \times -7 \times -10 = -140
 \end{aligned}$$

Question 4.

Find the cube-roots of :

<https://www.indcareer.com/schools/selina-class-8-icse-solutions-mathematics-chapter-4-cubes-and-cube-roots/>

(i) 2.744

(ii) 9.261

(iii) 0.000027

(iv) -0.512

(v) -15.625

(vi) -125×1000

Solution:

$$(i) 2.744 = \sqrt[3]{\frac{2744}{1000}}$$

$$\begin{array}{r|l} 2 & 2744 \\ \hline 2 & 1372 \\ \hline 2 & 686 \\ \hline 7 & 343 \\ \hline 7 & 49 \\ \hline 7 & 7 \\ \hline & 1 \end{array}$$

$$= \sqrt[3]{\frac{2 \times 2 \times 2 \times 7 \times 7 \times 7}{10 \times 10 \times 10}}$$

$$= \frac{2 \times 7}{10} = \frac{14}{10} = 1.4$$

$$(ii) 9.261 = \sqrt[3]{\frac{9261}{1000}} = \sqrt[3]{\frac{3 \times 3 \times 3 \times 7 \times 7 \times 7}{10 \times 10 \times 10}}$$

$$\begin{array}{r|l} 3 & 9261 \\ \hline 3 & 3087 \\ \hline 3 & 1029 \\ \hline 7 & 343 \\ \hline 7 & 49 \\ \hline 7 & 7 \\ \hline & 1 \end{array}$$

$$= \frac{3 \times 7}{10} = \frac{21}{10} = 2.1$$

$$(iii) 0.000027 = \sqrt[3]{\frac{27}{1000000}}$$

$$= \sqrt[3]{\frac{3 \times 3 \times 3}{100 \times 100 \times 100}} = \frac{3}{100} = 0.03$$

$$(iv) -0.512 = \sqrt[3]{\frac{-512}{1000}} = \sqrt[3]{\frac{-8 \times -8 \times -8}{10 \times 10 \times 10}}$$

$$= \frac{-8}{10} = -0.8$$

$$(v) -15.625 = \sqrt[3]{\frac{-15625}{1000}}$$

$$\begin{array}{r|l} 5 & 15625 \\ \hline 5 & 3125 \\ \hline 5 & 625 \\ \hline 5 & 125 \\ \hline 5 & 25 \\ \hline 5 & 5 \\ \hline & 1 \end{array}$$

$$\sqrt{\frac{-(5 \times 5 \times 5) \times (5 \times 5 \times 5)}{10 \times 10 \times 10}}$$

$$= \frac{-5 \times 5}{10} = \frac{-25}{10} = -2.5$$

$$\begin{aligned} \text{(vi)} \quad -125 \times 1000 &= \sqrt{-125 \times 100} \\ &= \sqrt{-(5 \times 5 \times 5) \times (10 \times 10 \times 10)} \\ &= -5 \times 10 = -50 \end{aligned}$$

Question 5.

Find the smallest number by which 26244 may be divided so that the quotient is a perfect cube.

Solution:

The prime factors of 26244 are

2		26244
2		13122
3		6561
3		2187
3		729
3		243
3		81
3		27
3		9
3		3
		1

$$= 2 \times 2 \times 3 \times 3 \times 3 \times 3 \times 3 \times 3 \times 3 \times 3$$

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

Clearly, 26244 must be divided by

$$3 \times 3 \times 2 \times 2 = 36$$

Question 6.

<https://www.indcareer.com/schools/selina-class-8-icse-solutions-mathematics-chapter-4-cubes-and-cube-roots/>



What is the least number by which 30375 should be multiplied to get a perfect cube?

Solution:

The prime factors of 30375 are

$$\begin{array}{r|l} 3 & 30375 \\ 3 & 10125 \\ 3 & 3375 \\ 3 & 1125 \\ 3 & 375 \\ 5 & 125 \\ 5 & 25 \\ 5 & 5 \\ & 1 \end{array}$$

$$= 3 \times 3 \times 3 \times 3 \times 3 \times 5 \times 5 \times 5$$

$$= (3 \times 3 \times 3) \times (5 \times 5 \times 5) \times 3 \times 3$$

Clearly, 30375 must be multiplied with 3

Question 7.

Find the cube-roots of :

(i) $700 \times 2 \times 49 \times 5$

(ii) -216×1728

(iii) -64×-125

(iv) $\sqrt[3]{\frac{-27}{343}}$

(v) $\sqrt[3]{\frac{729}{-1331}}$

(vi) 250.047

(vii) -175616

Solution:

<https://www.indcareer.com/schools/selina-class-8-icse-solutions-mathematics-chapter-4-cubes-and-cube-roots/>

(i) $700 \times 2 \times 49 \times 5$

$$\begin{array}{r|l} 2 & 700 \\ \hline 2 & 350 \\ \hline 5 & 175 \\ \hline 5 & 35 \\ \hline 7 & 7 \\ \hline & 1 \end{array}$$

$$\begin{aligned} &= 2 \times 2 \times 5 \times 5 \times 7 \times 2 \times 7 \times 7 \times 5 \\ &= (2 \times 2 \times 2) \times (5 \times 5 \times 5) \times (7 \times 7 \times 7) \\ &= 2 \times 5 \times 10 = 70 \end{aligned}$$

(ii) -216×1728

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

$$\begin{aligned} &= -(2 \times 2 \times 2 \times 3 \times 3 \times 3) \times (2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 3 \times 3 \times 3) \\ &= -2 \times 3 \times 2 \times 2 \times 3 = -72 \end{aligned}$$

(iii) -64×-125

$$\begin{aligned} &= -(4 \times 4 \times 4) \times -(5 \times 5 \times 5) \\ &= -4 \times -5 = 20 \end{aligned}$$

$$(iv) -\frac{27}{343} = \frac{3 \times 3 \times 3}{7 \times 7 \times 7} = -\frac{3}{7}$$

$$(v) \frac{729}{-1331} = \frac{(9 \times 9 \times 9)}{-(11 \times 11 \times 11)} = -\frac{9}{11}$$

$$(vi) 250.047 = \frac{250047}{1000}$$

$$\begin{array}{r|l} 3 & 250047 \\ \hline 3 & 83349 \\ \hline 3 & 27783 \\ \hline 3 & 9261 \\ \hline 3 & 3087 \\ \hline 3 & 1029 \\ \hline 7 & 343 \\ \hline 7 & 49 \\ \hline 7 & 7 \\ \hline & 1 \end{array}$$

$$= \frac{(3 \times 3 \times 3) \times (3 \times 3 \times 3) \times (7 \times 7 \times 7)}{(10 \times 10 \times 10)}$$

$$= \frac{3 \times 3 \times 7}{10} = \frac{63}{10} = 6.3$$

(vii) -175616

2	175616
2	27808
2	43904
2	21952
2	10976
2	5488
2	2744
2	1372
2	686
7	343
7	49
7	7
	1

$$\begin{aligned} &= -[(2 \times 2 \times 2) \times (2 \times 2 \times 2) \times (2 \times 2 \times 2) \\ &\quad \times (7 \times 7 \times 7)] \\ &= -[2 \times 2 \times 2 \times 7] = -56 \end{aligned}$$



Selina Publishers ICSE Solutions

Class 8 Maths

- Chapter 1- Rational Numbers
- Chapter 2- Exponents (Powers)
- Chapter 3- Squares and Square Roots
- Chapter 4- Cubes and Cube-Roots
- Chapter 5- Playing with Number
- Chapter 6- Sets
- Chapter 7- Percent and Percentage
- Chapter 8- Profit, Loss and Discount
- Chapter 9- Simple and Compound Interest
- Chapter 10- Direct and Inverse Variations
- Chapter 11- Algebraic Expressions
- Chapter 12- Algebraic Identities
- Chapter 13- Factorisation
- Chapter 14- Linear Equations in one Variable
- Chapter 15- Linear Inequations
- Chapter 16- Understanding Shapes
- Chapter 17- Special Types of Quadrilaterals
- Chapter 18- Constructions
- Chapter 19- Representing 3-D in 2-D
- Chapter 20- Area of Trapezium and a Polygon
- Chapter 21- Surface Area, Volume and Capacity
- Chapter 22- Data Handling
- Chapter 23- Probability

<https://www.indcareer.com/schools/selina-class-8-icse-solutions-mathematics-chapter-4-cubes-and-cube-roots/>

About About Selina Publishers ICSE

Selina Publishers has been serving the students since 1976 and is one of the quality ICSE school textbooks publication houses. Mathematics and Science books for classes 6-10 form the core of our business, apart from certain English and Hindi literature as well as a few primary books. All these books are based upon the syllabus published by the Council for the I.C.S.E. Examinations, New Delhi. The textbooks are composed by a panel of subject experts and vetted by teachers practising in ICSE schools all over the country. Continuous efforts are made in complying with the standards and ensuring lucidity and clarity in content, which makes them stand tall in the industry.

<https://www.indcareer.com/schools/selina-class-8-icse-solutions-mathematics-chapter-4-cubes-and-cube-roots/>

About IndCareer

IndCareer.com is a leading developer of online career guidance resources for the Indian marketplace. Established in 2007, IndCareer.com is currently used by over thousands of institutions across India, including schools, employment agencies, libraries, colleges and universities.

IndCareer.com is designed to assist you in making the right career decision - a decision that meets your unique interests and personality.

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

Postal Address

IndCareer.com
52, Shilpa Nagar,
Somalwada
Nagpur - 440015
Maharashtra, India

WhatsApp: +91 9561 204 888

Website: <https://www.indcareer.com>

<https://www.indcareer.com/schools/selina-class-8-icse-solutions-mathematics-chapter-4-cubes-and-cube-roots/>