

ASSIGNMENT
CUBE AND CUBE ROOT

1. Is 9000 a perfect cube?
2. By which smallest number should 42592 be divided so that the quotient is a perfect cube?
3. Show that 46656 is a perfect cube.
4. By which smallest number should 704 be divided to obtain a perfect cube?
5. Find the cube root of 9197.
6. Show that 384 is not a perfect cube.
7. By which smallest number should 648 be multiplied so that the product is a perfect cube?
8. Find the number whose cube is 27000.
9. What is the smallest number by which 288 must be multiplied so the product is a perfect cube?
10. Find the cube of $\frac{4}{5}$.
11. Show that 0.001728 is a cube root of a rational number.
12. Find the sides of a cubical box whose volume is 64 cm^3 .
13. If the surface area of a cube is 486 cm^2 , find its volume.
14. Find the volume of a cube whose surface area is 96 cm^2 .
15. Write all the digits that would appear as the last digits of their respective cubes.
16. Show that if a number is doubled, then its cube becomes eight times the cube of the given number.
17. Find the cubes of the following:
 - (a) 0.3
 - (b) 0.8
 - (c) .001
 - (d) $2 - 0.3$
18. Is 135 a perfect cube?
19. Find the cube roots of the following:
 - (a) 1728
 - (b) 3375
20. Find the smallest number by which 1323 may be multiplied so that the product is a perfect cube.
21. What is the smallest number by which 2916 should be divided so that the quotient is a perfect cube?
22. Check whether 1728 is a perfect cube by using prime factorisation.
- 23.

Show that $\sqrt[3]{27} \times \sqrt[3]{125} = \sqrt[3]{27 \times 125}$

24.

Simplify: $\sqrt[3]{5 - \frac{10}{27}}$

25. Express the following numbers as the sum of odd numbers using the given pattern

$$5^3 - 4^3 = 1 + \frac{5 \times 4}{2} \times 6 = 61$$

$$7^3 - 6^3 = 1 + \frac{7 \times 6}{2} \times 6 = 127$$

$$(i) 9^3 - 8^3 = \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

$$(ii) 12^3 - 11^3 = \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

$$(iii) 51^3 - 50^3 = \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

26. Observe the following pattern and complete the blank spaces.

$$1^3 = 1$$

$$2^3 - 1^3 = 1 + \frac{2 \times 1}{2} \times 6 = 7$$

$$\therefore 2^3 = 1 + 7 = 8$$

$$3^3 - 2^3 = 1 + \frac{3 \times 2}{2} \times 6 = 19$$

$$\therefore 3^3 = 2^3 + 19$$

$$\Rightarrow 3^3 = 1 + 7 + 19$$

$$(i) 4^3 = \underline{\hspace{2cm}} \qquad (ii) 6^3 = \underline{\hspace{2cm}}$$

$$(iii) 7^3 = \underline{\hspace{2cm}} \qquad (iv) 9^3 = \underline{\hspace{2cm}}$$

$$(v) 11^3 = \underline{\hspace{2cm}}$$

27. What is the smallest number by which 1600 must be divided so that the quotient is a perfect cube?

28. Parikshit makes a cuboid of plasticine of sides 5 cm, 2 cm, 5 cm. How many such cuboids will he need to form a cube?

29. Find the cube root of 17576 through estimation.

30. You are told that 1,331 is a perfect cube. Can you guess without factorisation what its cube root is? Similarly, guess the cube roots of 4913, 12167, 32768.