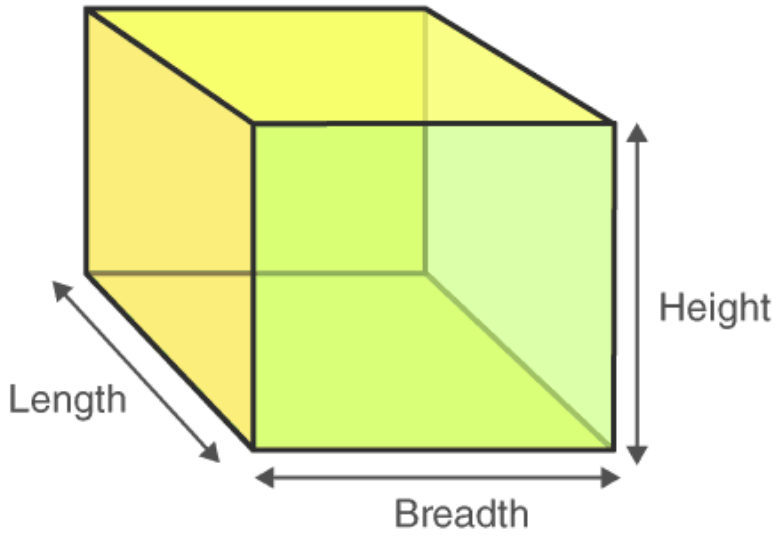
CUBE AND CUBOID

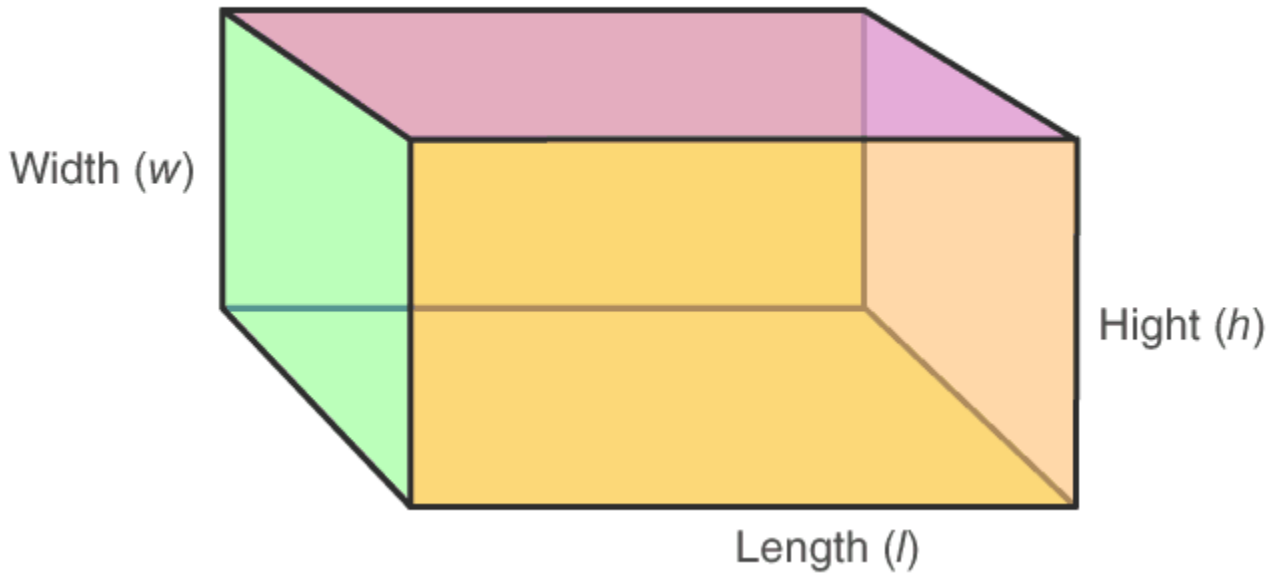
Basic Structure of a Cube

A cube is a 3-dimensional structure with three sides (length, width, and height) where all the sides equal (length = width= height).



CUBE AND CUBOID

A cuboid is a 3-dimensional structure with three sides where all the sides are not equal. The three sides are the length, width, and height. All of its faces are rectangles A cuboid also has 6 faces, 8 vertices, and 12 edges.



CUBE AND CUBOID

Formulas for Cube:

For a cube of side n x n x n painted on all sides which is uniformly cut into smaller cubes of dimension 1 x 1 x 1,

- **Number of cubes with 0 side painted= $(n-2)^3$**
- **Number of cubes with 1 sides painted = $6(n-2)^2$**
- **Number of cubes with 2 sides painted = 12(n-2)**
- **Number of cubes with 3 sides painted= 8(always)**

CUBE AND CUBOID

Formulas for Cuboid :

For a cuboid of dimension a x b x c painted on all sides which is cut into smaller cubes of dimension 1 x 1 x 1,

Number of cubes with 0 side painted = (a-2) (b-2) (c-2)

Number of cubes with 1 sides painted = 2[(a-2) (b-2) + (b-2)(c-2) + (a-2)(c-2)]

Number of cubes with 2 sides painted = 4(a+b+c -6)

Number of cubes with 3 sides painted = 8

CUBE AND CUBOID

Direction (1 to 7):– After coloring a cube of 4×4×4 cm. side with yellow. After that it cut into 1cm small side cubes. Then answer the following question?

Q 1. How many total number of small cubes are there?

(a) 16 (b) 64 (c) 8 (d) 27

Q 2. Total number of small cubes are on three surface coloured–

(a) 64 (b) 8 (c) 16 (d) 25

Q 3. How many small cubes which are two surface coloured?

(a) 24 (b) 36 (c) 48 (d) 64

CUBE AND CUBOID

Direction (1 to 7):– After coloring a cube of 4×4×4 cm. side with yellow. After that it cut into 1cm small side cubes. Then answer the following question?

Q 1. How many total number of small cubes are there?

(a) 16 (b) 64 (c) 8 (d) 27

Q 2. Total number of small cubes are on three surface coloured–

(a) 64 (b) 8 (c) 16 (d) 25

Q 3. How many small cubes which are two surface coloured?

(a) 24 (b) 36 (c) 48 (d) 64

CUBE AND CUBOID

Q 4. How many small cubes we have which at least are two surface painted?

(a) 64 (b) 36 (c) 32 (d) 1

Q 5. Number of small cubes which are coloured with single surface?

(a) 24 (b) 36 (c) 48 (d) 64

Q 6. Number of colourless cubes are?

(a) 8 (b) 27 (c) 25 (d) 4

Q 7. Number of cubes which is at least one surface coloured?

(a) 64 (b) 8 (c) 56 (d) 16

CUBE AND CUBOID

Q 4. How many small cubes we have which at least are two surface painted?

(a) 64 (b) 36 (c) 32 (d) 1

Q 5. Number of small cubes which are coloured with single surface?

(a) 24 (b) 36 (c) 48 (d) 64

Q 6. Number of colourless cubes are?

(a) 8 (b) 27 (c) 25 (d) 4

Q 7. Number of cubes which is at least one surface coloured?

(a) 64 (b) 8 (c) 56 (d) 16

CUBE AND CUBOID

Direction (8 to 14):- A bigger cubes of 9×9×9 cm size is coloured all surface with green. After that it is cut into three inches small cubes. Give the following answer?

Q 8. Total number of small cubes are?

(a) 27 (b) 729 (c) 216 (d) 36

Q 9. Number of small cubes which have three surface painted?

(a) 9 (b) 3 (c) 8 (d) 27

Q 10. Number of small cubes with two surface coloured?

(a) 8 (b) 12 (c) 27 (d) 729

CUBE AND CUBOID

Direction (8 to 14):- A bigger cubes of 9×9×9 cm size is coloured all surface with green. After that it is cut into three inches small cubes. Give the following answer?

Q 8. Total number of small cubes are?

(a) 27 (b) 729 (c) 216 (d) 36

Q 9. Number of small cubes which have three surface painted?

(a) 9 (b) 3 **(c) 8** (d) 27

Q 10. Number of small cubes with two surface coloured?

(a) 8 **(b) 12** (c) 27 (d) 729

CUBE AND CUBOID

Q 11. Number of small cubes with at least two surface coloured?

(a) 20 (b) 12 (c) 27 (d) 8

Q 12. Number of small cubes which are only one side coloured?

(a) 8 (b) 12 (c) 6 (d) 26

Q 13. Total number of small colourless cubes are?

(a) 6 (b) 12 (c) 27 (d) 1

Q 14. Number of small cubes which are at least one surface coloured?

(a) 27 (b) 26 (c) 20 (d) 1

CUBE AND CUBOID

Q 11. Number of small cubes with at least two surface coloured?

(a) 20 (b) 12 (c) 27 (d) 8

Q 12. Number of small cubes which are only one side coloured?

(a) 8 (b) 12 **(c) 6** (d) 26

Q 13. Total number of small colourless cubes are?

(a) 6 (b) 12 (c) 27 **(d) 1**

Q 14. Number of small cubes which are at least one surface coloured?

(a) 27 **(b) 26** (c) 20 (d) 1

CUBE AND CUBOID

Direction (15 to 21):- 7 × 7 × 7 cm. size of a cube is coloured with red. After coloured it is cut into 1cm side of small cubes?

Q 15. Total number of small cubes?

(a) 343 (b) 64 (c) 216 (d) 49

Q 16. Three surface coloured cubes are?

(a) 6 (b) 8 (c) 7 (d) 49

Q 17. Number of small cubes which are coloured with two surface?

(a) 56 (b) 150 (c) 125 (d) 60

CUBE AND CUBOID

Direction (15 to 21):- 7 × 7 × 7 cm. size of a cube is coloured with red. After coloured it is cut into 1cm side of small cubes?

Q 15. Total number of small cubes?

(a) 343 (b) 64 (c) 216 (d) 49

Q 16. Three surface coloured cubes are?

(a) 6 (b) 8 (c) 7 (d) 49

Q 17. Number of small cubes which are coloured with two surface?

(a) 56 (b) 150 (c) 125 (d) 60

CUBE AND CUBOID

Q 18. Number of small cubes which are coloured with at least two surface?

(a) 60 (b) 150 (c) 68 (d) 16

Q 19. Number of small cubes which are only one side coloured?

(a) 150 (b) 60 (c) 343 (d) 49

Q 20. Total number of colourless cubes?

(a) 150 (b) 125 (c) 49 (d) 7

Q 21. Number of small cubes which are at least one surface coloured?

(a) 343 (b) 125 (c) 218 (d) 8

CUBE AND CUBOID

Q 18. Number of small cubes which are coloured with at least two surface?

(a) 60 (b) 150 (c) 68 (d) 16

Q 19. Number of small cubes which are only one side coloured?

(a) 150 (b) 60 (c) 343 (d) 49

Q 20. Total number of colourless cubes?

(a) 150 (b) 125 (c) 49 (d) 7

Q 21. Number of small cubes which are at least one surface coloured?

(a) 343 (b) 125 (c) 218 (d) 8

CUBE AND CUBOID

Direction (22 to 26):– After coloring a big cube yellow, it is divided into 216 equal small cubes.

Q. 22. How many small cubes could be achieved with three surface coloured?
(a) 6 (b) 64 (c) 8 (d) 1

Q 23. How many colourless cubes could be got–

(a) 216 (b) 8 (c) 64 (d) 1

CUBE AND CUBOID

Direction (22 to 26):– After coloring a big cube yellow, it is divided into 216 equal small cubes.

Q. 22. How many small cubes could be achieved with three surface coloured?

(a) 6 (b) 64 (c) 8 (d) 1

Q 23. How many colourless cubes could be got–

(a) 216 (b) 8 (c) 64 (d) 1

CUBE AND CUBOID

Q 24. Only one side coloured cubes are–

(a) 64 (b) 96 (c) 48 (d) 216

Q 25. How many cubes will be with two surface coloured–

(a) 48 (b) 64 (c) 96 (d) 8

Q 26. How many cut will be required to divided the big cubes into equal small cubes–

(a) 96 (b) 48 (c) 3 (d) 15

CUBE AND CUBOID

Q 24. Only one side coloured cubes are–

(a) 64 (b) 96 (c) 48 (d) 216

Q 25. How many cubes will be with two surface coloured–

(a) 48 (b) 64 (c) 96 (d) 8

Q 26. How many cut will be required to divided the big cubes into equal small cubes–

(a) 96 (b) 48 (c) 3 (d) 15

CUBE AND CUBOID

Direction (27 to 31):- Total area of a big cube is 1536 sq. cm. It is divided in such a way as that the area of one surface of small cubes is 4sq. cm.

Q 27. How many small cubes can be made from the big cubes?

(a) 8 **(b) 512** **(c) 196** **(d) 64**

Q 28. The area of one surface of the biger cubes?

(a) 512 cm **(b) 196 cm** **(c) 256 cm** **(d) 64 cm**

CUBE AND CUBOID

Direction (27 to 31):- Total area of a big cube is 1536 sq. cm. It is divided in such a way as that the area of one surface of small cubes is 4sq. cm.

Q 27. How many small cubes can be made from the big cubes?

(a) 8 **(b) 512** **(c) 196** **(d) 64**

Q 28. The area of one surface of the biger cubes?

(a) 512 cm **(b) 196 cm** **(c) 256 cm** **(d) 64 cm**

CUBE AND CUBOID

Q 29. The area of total surface of small cubes is?

(a) 64 cm2 (b) 24 cm2 (c) 48 cm2 (d) 512 cm2

Q 30. Length of one side of the larger cubes is?

(a) 16 cm (b) 24 cm (c) 2 cm (d) 48 cm

Q 31. How many cuts are required to devided the large cubes into small cubes?

(a) 24 (b) 64 (c) 8 (d) 21

CUBE AND CUBOID

Q 29. The area of total surface of small cubes is?

(a) 64 cm2 (b) 24 cm2 (c) 48 cm2 (d) 512 cm2

Q 30. Length of one side of the larger cubes is?

(a) 16 cm (b) 24 cm (c) 2 cm (d) 48 cm

Q 31. How many cuts are required to devided the large cubes into small cubes?

(a) 24 (b) 64 (c) 8 (d) 21

CUBE AND CUBOID

Direction (32 to 36):- A bigger cubes of size 3×3×3 cm. is coloured opposite pair of surface by red, green and yellow respectively? Finally it devide small cubes of 1cm side?

Q 32. Number of small cubes which must have mandatory all three surface coloured (red, green and yellow)?

(a) 6 (b) 8 (c) 27 (d) 9

Q 33. Number of small cubes which have two surface coloured with only red and green?

(a) 4 (b) 8 (c) 27 (d) 26

CUBE AND CUBOID

Direction (32 to 36):- A bigger cubes of size 3×3×3 cm. is coloured opposite pair of surface by red, green and yellow respectively? Finally it devide small cubes of 1cm side?

Q 32. Number of small cubes which must have mandatory all three surface coloured (red, green and yellow)?

(a) 6 (b) 8 (c) 27 (d) 9

Q 33. Number of small cubes which have two surface coloured with only red and green?

(a) 4 (b) 8 (c) 27 (d) 26

CUBE AND CUBOID

Q 34. Number of small cubes which are coloured atleast yellow or atleast green?

(a) 27 (b) 20 (c) 12 (d) 1

Q 35. Number of small cubes which are coloured with only yellow?

(a) 20 (b) 8 (c) 2 (d) 6

Q 36. Total number of small cubes which have atleast one surface green?

(a) 64 (b) 18 (c) 27 (d) 26

CUBE AND CUBOID

Q 34. Number of small cubes which are coloured atleast yellow or atleast green?

(a) 27 (b) 20 (c) 12 (d) 1

Q 35. Number of small cubes which are coloured with only yellow?

(a) 20 (b) 8 (c) 2 (d) 6

Q 36. Total number of small cubes which have atleast one surface green?

(a) 64 (b) 18 (c) 27 (d) 26

CUBE AND CUBOID

Direction (37 to 41):- A cubes of 8 × 8 × 8 cm. side is coloured opposite surface with red, green and yellow. After that cubes is cut into two cm small cubes.

Q 37. Number of small cubes which have three surface coloured with red, green and yellow?

(a) 64 (b) 8 (c) 32 (d) 56

Q 38. Number of small cubes which have two surface coloured with only red and yellow?

(a) 8 (b) 16 (c) 4 (d) 32

CUBE AND CUBOID

Direction (37 to 41):- A cubes of 8 × 8 × 8 cm. side is coloured opposite surface with red, green and yellow. After that cubes is cut into two cm small cubes.

Q 37. Number of small cubes which have three surface coloured with red, green and yellow?

(a) 64 (b) 8 (c) 32 (d) 56

Q 38. Number of small cubes which have two surface coloured with only red and yellow?

(a) 8 (b) 16 (c) 4 (d) 32

CUBE AND CUBOID

Q 39. Number of cubes which are coloured by atleast red and yellow?

(a) 16 (b) 24 (c) 64 (d) 32

Q 40. Number of small cubes coloured with only green?

(a) 32 (b) 16 (c) 8 (d) 20

Q 41. Number of small cubes which have atleast one surface green?

(a) 64 (b) 8 (c) 32 (d) 56

CUBE AND CUBOID

Q 39. Number of cubes which are coloured by atleast red and yellow?

(a) 16 (b) 24 (c) 64 (d) 32

Q 40. Number of small cubes coloured with only green?

(a) 32 (b) 16 (c) 8 (d) 20

Q 41. Number of small cubes which have atleast one surface green?

(a) 64 (b) 8 (c) 32 (d) 56

CUBE AND CUBOID

Direction (42 to 46):- A bigger cubes of 5 × 5 × 5 cm. size coloured opposite pair of surface with red, green and yellow respectively. After that cube is cut into 1cm. small cubes. Then give the following answers.

Q 42. Number of small cubes which have two surface coloured and colours are red and yellow.

(a) 20 (b) 125 (c) 44 (d) 12

Q 43. How many cubes which have atleast green and yellow colour?

(a) 20 (b) 44 (c) 30 (d) 54

CUBE AND CUBOID

Direction (42 to 46):- A bigger cubes of 5 × 5 × 5 cm. size coloured opposite pair of surface with red, green and yellow respectively. After that cube is cut into 1cm. small cubes. Then give the following answers.

Q 42. Number of small cubes which have two surface coloured and colours are red and yellow.

(a) 20 (b) 125 (c) 44 (d) 12

Q 43. How many cubes which have atleast green and yellow colour?

(a) 20 (b) 44 (c) 30 (d) 54

CUBE AND CUBOID

Q 44. Number of small cubes with one side coloured.

(a) 20 (b) 54 (c) 44 (d) 50

Q 45. Number of small cubes which coloured with only yellow.

(a) 8 (b) 60 (c) 18 (d) 54

Q 46. Number of small cubes which have atleast one side green.

(a) 60 (b) 18 (c) 54 (d) 50

CUBE AND CUBOID

Q 44. Number of small cubes with one side coloured.

(a) 20 (b) 54 (c) 44 (d) 50

Q 45. Number of small cubes which coloured with only yellow.

(a) 8 (b) 60 (c) 18 (d) 54

Q 46. Number of small cubes which have atleast one side green.

(a) 60 (b) 18 (c) 54 (d) 50

CUBE AND CUBOID

Direction (47 to 50):- A cube of 7 × 7 × 7 cm. side is coloured with red, green, yellow, Black, pink and violet. Then it is cut into 1cm. small cubes.

Q 47. Total number of small cubes.

(a) 343 (b) 243 (c) 49 (d) 729

Q 48. Number of small cubes which have three side coloured.

(a) 343 (b) 8 (c) 64 (d) 60

CUBE AND CUBOID

Direction (47 to 50):- A cube of 7 × 7 × 7 cm. side is coloured with red, green, yellow, Black, pink and violet. Then it is cut into 1cm. small cubes.

Q 47. Total number of small cubes.

(a) 343 (b) 243 (c) 49 (d) 729

Q 48. Number of small cubes which have three side coloured.

(a) 343 **(b) 8** (c) 64 (d) 60

CUBE AND CUBOID

Q 49. Number of small cubes which have two side coloured.

(a) 49 (b) 64 (c) 60 (d) 27

Q 50. Number of small cubes which are atleast two surface coloured.

(a) 60 (b) 64 (c) 65 (d) 68

CUBE AND CUBOID

Q 49. Number of small cubes which have two side coloured.

(a) 49 (b) 64 (c) 60 (d) 27

Q 50. Number of small cubes which are atleast two surface coloured.

(a) 60 (b) 64 (c) 65 (d) 68

THANK YOU