MATHS

BOOKS - CALCUTTA BOOK HOUSE

MATHS (BENGALI ENGLISH)

RECTANGULAR PARALLELOPIPED OR CUBOID

Examples

1. The length , breath and height of a cuboidal hole are 40 m 12 m, and 16 m respectively, The number of planks having the height of 5 m , the breath of 4 m and the thickness of 2 m can be kept in that hole is

A. 190

B. 192

C. 184

D. 180

Answer:

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2. The length, suface area of a cube is 256 sq-m , the volume of the cube is

A. $64cm^3$

B. $216m^3$

C. $256m^3$

D. $512m^3$

Answer:

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3. The ratio of the volumes of two cubes is 1: 27, the ratio of total suface areas of two cubes is

A. $1:3$

B. $1:8$

C. $1:9$

D. $1:18$

Answer:

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4. If total suface area of a cube is s unit and the leght of its diagonal is d unit, then the raltion between s and d is

A. $s = 6d^2$

B. $3s = 7d$

C. $S^3 = d^2$

D. $d^2 = \frac{s}{2}$

Answer:

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5. The inner volume of a cuboidal box is 440 cc and the area of inner base is 88 sq. cm, the inner height of the box is

A. 4 cm

B. 5 cm

C. 3 cm

D. 6 cm

Answer:

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6. State True or False- If the length of each edge of a cube is twice of that 1st cube, then the volume of this cube is 4 times more than that of the 1st cube.

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7. In rain y season, the heigth of reain fall in 2 herctre land is 5 cm. the volume of rain water

is 1000 cubic metre.

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8. The number of diagonals of a cuboid is _____.

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9. The length of the diagonal on a surface of a cube =_____x the length of one edge.

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10. If the length, breadth and height oif a rectangular parallelpoiped are equal then the special name of this solid is _____.

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11. Short- answer type questions (S.A) .

If the number of surfaces of cuboid is x, the number of edges is y, the number of vertices is

z and the number of diagenals is p, find the volue of (x-y+z+p).

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12. The lengths of the diamensions of two cuboids are 4,6,4 units and 8,(2h-1), 2 units respectively, If the volumes of two cuboids are equal , then find the value of h.

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13. If each edge of a cube is increased by 50% , then how much the total surface are a of the cube will be increased in percent ?

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14. A tank can contain 384 litres of water. The length of the tank is 3 times of its depth and the breadth is 2 times of its depth. Find the depth of the tank.

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15. If a river of depthness 2 metres and breadth 45 metress, flowrs at a speed of 3 km per hours, then find the quanity of water that will fall from the river to the sea in 1 minute.

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16. Find the volume of the water deposited in land of surface area 2 hectres if in a day it rains 5 cm.

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17. If the ares of threes consective surface of a paralleloip- shape box be 50 sq. cm, 40 sq cm and 20 sq-cm repectively. Find the volume of the box.

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18. The leght, breadth and height and height of reactangular parallelopiped type of wood are 15 cm, 12 cm and 20 cm respectively. To

make a cubet at least how many piece of such wood will be required ?

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19. By melting a large metal cube of side 4 cm each, some smaller metal cube of side 2 cm each are made.Find the total surface are of each smaller cube.

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20. The length , breath and height of rectangular parallelopiped room are 5 m , 4 m and 3 m respectively. Find the length of the longest rod that can be put into that room.

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21. A canal of breadth 2m and depth 8 dcm have been drugged in our village Bakultala. If the volume of the soil extrated be 240 cubic-metres, then find the length of the canal.

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22. The sum of the areas of six surfaces of a cube is 216 sq-cm, find the volume of the cube.

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23. The volume of a rectangular parallelopiped is 432 cc. If it is divided into two cubes of equal volume, then find the length of each side of the cubes.

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24. Each side of a cube is decreased by 50%. Then what will be the ratio of volumes of the original cube and the decreased rube ?

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25. The inner length , breadth and height of a tea - box are 7.5 dcm, 6 dcm and 5.4 dcm respectively, The weight of the box fulled with tea is 52 kg 350 gms, but the weight of the

empty box is 3.75 kg . Then what will be the weight of tea of volume 1 cu- dcm. ?

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26. The length of brass -plate of a square -shaped base is x cm, thickness 1 mm and weight 4725 gms. If the weight of 1 cu-cm brass is 8.4 gms then what will be the value of x ?

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27. The height of chandmari road is to be raised , so, 30 cuboidal holes with equal depth and of equal measure are dug out on both sides of the road and with this soil the road is elavated .If the length and breadth of each hole are 14 m and 8m respectively and if the total quantity of soil required to make the road be 2520 cubic metre, then calculate the depth of each hole.

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28. If 64 water filled buckets of equal measure are taken out from a cubical water fiUed tank, then $\frac{1}{3}$rd of water remains in the tank. If the length of one edge of the tank is 1 ·2 m, then calculate the quantity of water that can be hold in each bucket ?

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29. If the heights of 3 persons are 144 cm, 153 cm and 155 cm respectively, then mean height

is

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30. Half of a cuboidal water tank with length of 2· 1 m and breadth of 1·5 m is filled with water. If 630 litres water is poured more into the tank, then calculate the depth of water that will be increased by.

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31. The length and breadth of n rectangular field of a village are 20 m and 15 m respectively. For construction of pillars in the 4 corners of that field 4 cubic holes huving length of 4 m are dug out and the soils removed arc dispersed on the remaining land. Calculate the height of the surfaces of the field that is increased by it.

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32. There were 800 litres, 725 litres and 575 litres kerosine oil in three kerosine oil drums in a house. The oil of these three drums is poured into a cuboidal pot and for this, the depth of oil in drums becomes 7 dcm. If the ratio of the length and breadth of the cuboidal pot is 4 : 3, then calculate the length and breadth of the pot. If the depth of the cuboidal pot· would be 5 dcm, calculate whether 1620 litre oil can be kept or not in that pot.

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33. The daily requirements of water of three families in our three-storyed flat are 1200 litres, 1050 litres and 950 litres respectively. After fulfilling these requirements in order to put up a tank again and to deposit to store 25 % of the required water, only a land having the length of 2·5 m and breadth of 1 ·6 m has been procured. Calculate the depth of the tank in metre that should be made. If the breadth of the land would be more by 4 dcm, then calculate the depth of the tank to be made.

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34. The weight of a wooden box made of wooden planks with the thickness of 5 cm along with its covering is 115·5 kg. But the weight of the box filled with rice is 880·5 kg. The length-and breadth of inner side of the box are 12 dcm and 8·5 dcm respectively and the weight of 1 cubic dcm rice is 1 ·5 kg. Determine the inner height of the box. Also determine the total expenditure to colour the

outside of the box, if the rate is ₹ 1 ·50 per sq-dcm.

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35. The depth of a cuboid pond with length of 20 m and breadth of 18.5 m is 3.2 m, determine the time required to irrigate whole water of the pond with a pump having the capacity to irriagate 160 kilolitres water per hour. If that quantity of water is poured on a paddy field with a ridge having the length of 59.2 m and

breath of 40 m, then what is the depht of water in that land ? [Let 1 cubic metre=1 kilolitre]

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36. 8 wooden rectangular parallelopiped of same shape when arranged one over another, the volume becomes 128 cc. If the base of each rectangular parallelopipcd be a square and of height 1 cm, then find the length, breadth and

height of each wooden rectangular parallelopiped.

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37. The length and breadth of a rectangular field are }54 m and 121 m respectively. If by digging a hole of length 14 m and breadth 11 m in the middle of the field, the soil thus obtained is dispersed in the remaining land, then the height of the field is increased by 25 cm. Determine the depth of the hole.

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38. If two cubes of sides 10 cm each be joined side by side, then what will be the total surface area of the produced cuboid ?

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39. If the sum of length, breadth and height of a cuboid be 19 cm and the length of its diagonal be 11 cm, then· what will be the total surface area of the cuboid ?

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40. To make a wall of length 6 metres, of height 5 metres and of thickness 0.5 metre, how many bricks of size $25cm \times 12.5 \times 7.5cm$ will be required when $\frac{1}{20}$ part of the wall will be made of a mixture of sand and cement?

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41. The length and breadth of a cuboid - shaped piece of wood are 2.3 metres and 0.75 metres respectively. If the volume of the wooden piece be 1.104 cubic-metres, then how may piece of wood of size $2.3m \times 0.75m \times 0.04m$ can be cut off from this piece of wood ?

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42. The length of a cuboidal tank is 20 metres. The height of the water- level in the tank decreases by 15 cm when 18 kilolitres water is taken out from the tank. Then find the breadth of the tank.

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43. A soild cube is divided into two objects of equal volumes, then what will be the ratio of

the total surface area of the cube and the surface area of each cuboidal object?

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Exercise Mcqs

1. If the length of the diagonal of a cube be $4\sqrt{6}$cm, then the length of the diagonal of each surface of the cube will be

A. $8\sqrt{2}cm$

B. 8 cm

C. $4\sqrt{2}cm$

D. 4 cm

Answer: A

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2. The area of a surface of a cube is 16 sq-metres. If the weight of the cube be 15 gm per cubic-metre, then the total weight of the cube will be

A. 960 gm

B. 900 gm

C. 940 gm

D. 980 gm

Answer: B

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3. If the length and breadth of a rectangular parallelopiped be 16 m and 8 m respectively

and the total surface area of it be 496 sq-metres, then the height ofit will be

A. 6 m

B. 4m

C. 5m

D. 7m

Answer: A

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4. Length of a side of a cube is 3cm,find its volume and total surface.

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5. To make a cube of side 1 metre each, how many cubes of side 10 cm each will be required ?

A. 100

B. 10

C. 10000

D. 1000

Answer: C

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6. The lengths of the diagonals of each surface of a rectangular parallelopiped are not equal.

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7. Among the length, breadth and height of a rectangular parallelopiped, the length of its diagonal is the greatest.

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8. The number of edges of a rectangular parallelopiped is _____ .

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9. The lengths of the diagonals of the roof and that of the floor of a cuboidal room are _____ .

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10. The lateral surfaces of a cuboid are _____ to each other.

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11. If the surface areas of three consecutive surface of a cuboid be x, y, and z, then what will be the volume of the cuboid ?

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12. If three edges of a cuboid be a, b, c units volume be v cubic units and total surface areas be s sq-units, then what is the value of $\frac{1}{v}$?

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13. The ratio of the areas of three consecutive surface of a cuboid 2 : 3 : 4 and if the volume of it be 9000 cc, then find the length of the smallest side of the cuboid.

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14. If the length of the side of a cube be doubled, then how many percentage of the total surface area of the cube will be invreased ?

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15. If the ratio of the total surface areas of two cubes be 16 : 25, then what will be the ratio of their respective volumes ?

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16. By melting a metal cube of side 5 cm each, some cubes of sides 1 cm each are made, then what will be the ratio of the total surface

areas of the large cube to the total surface area of each small cubes ?

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17. If the length of the sides of a cube of volume v be doubled, then the volume of the new cube becomes kv. Find the value of k.

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18. The length and breadth of a hall-room are 15 metres and 12 metres respectively. If the sum of the areas of the roof and floor of the hall-room be equal to the total areas of areas of four walls of the room, then what will be volume of the hall-room ?

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19. If the total surface area of a cube be equal to the sum of the surface areas of three cubes

of edges 3 cm, 4 cm and 5 cm respectively, then what will be the length of each side of the cube ?

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20. If the length of the diagonals of each surface of a cube be $a\sqrt{2}$ units, then prove that the length of the diagonals is. $a\sqrt{3}$ units.

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21. The length, breadth and height of a cuboidal piece of ice are 40 cm, 25 cm and 15 cm respectively. If the weight of ice be $\frac{9}{10}$ part of water of same volume and the weight of lee water be 1 gm, then what will be the weight of the total piece of ice ?

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22. Determine the total surface area, volume and length of diagonal of a cuboid oflength,

breadth and height 12 cm, 4 cm and 3 cm respectively.

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23. The volume of a cuboid is 440 cc. If the area of the base of the cuboid be 88 sq-cm, then what will be the height of the cuboid ?

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24. If a cuboid of length, breadth and height 100 cm, 80 cm and 64 cm respectively be reduced to a cube, then what will be the total surface area of the cube ?

25. A part of a cuboidal pot of length 15 cm and of breadth 12 cm is full of water If a cube of side 9 cm each be submerged into the

water of the pot, then how much the water-level of the pot will be raised ?

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26. If the soil obtained by digging holes of breadth 10 metres around the four outside of a cuboidal land of length 240 metres and of breadth 180 metres, be strewed upon the whole land, then the height of the land is increased by 25 cm. Find the height of the hole.

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27. If three cubes of side 5 cm each be joined together, then what will be the total surface area of the cuboid thus produced ?

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28. A wooden block is of length 6 metres, of breadth 15 cm and of thickness 40 cm. How many piece of wood of length 2 metres of

breadth 2·5 cm and of thickness 4 cm will be got ?

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29. The length and breadth of a rectangular land are 20 metres and 14 metres. A hole of length 6 metres,. of breadth 3 metres and of depth 2·5 metres is dug in one corner of the land. If the soil of this hole be strewed upon whole land, then how much the height of the land should be increased ?

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30. Length of a side of a cube is 7cm,find its diagonal length.

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31. If a hole of size $5m \times 4 \cdot 5m \times 2.1m$ be dug in the middle position of a field of length 13·5 metres and of breadth 2·5 metres and the soil obtained from it be strewed upon the rest

of the field, then how much the height of the field will be increased ?

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32. Length of a side of a cube is 5cm,find its diagonal length.

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33. Length of a rectangular box is 5cm,width 5cm and height 15cm,find the length of its

diagonal.

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34. The outer edges of a cuboidal wooden box are 10 cm, 8 cm, 7 cm respectively. The thickness of the box is 1 cm. If the value of 1 cc wood be ₹2, then what will be the making charge of the box ?

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35. Length of a rectangular box is 20cm,width 5cm and height 10cm,find the length of its diagonal.

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36. The length and breadth of vuboidal room are 20 metres and 16 metres respectively. The sum of the surface areas of the roof and of the floor of the room is equal to the surface areas

of four walls of the room. Find the height and volume of the room.

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37. The expenditure of covering the four walls with papers at the rate of 70 paise per sq-metre is ₹ 157.50 . If the height of the room be 5 metres and the ratio of the length and breadth of the room be 4 : 1, then what will be the length and breadth of the room ?

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38. If the total surface of a cube is 486 square meters , calculate one of its side.

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39. There are 18750 litres and 11250 litres petrols in two petrol- tanks respectively. The petrols of these two tanks is poured to another large tank of length and breadth 4 metres and 3 metres respectively due to two

lickage at the bottoms of the tanks. What will be the depth of the petrol in the large tank ?

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40. If the total surface of a cube is 150 square meters , calculate one of its side.

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