

CLASS-VIII
SUB-MATHEMATICS
MENSURATION(SURFACE AREA AND VOLUME)
Worksheet-1(Basic)

I) Multiple choice questions: (1 mark)

1. The volume of a cube of side 0.03m is _____
a) 0.27 m^3 b) 0.027 m^3 c) 27 m^3 d) 2.7 m^3
2. If the heights of a cylinder is halved, its volume will be _____ of its original volume
a) $\frac{1}{2}$ times b) $\frac{1}{3}$ times c) 2 times d) 3 times
3. The lateral surface area of a cuboid whose length, breadth and height are $2a$, $2b$ and $2c$ respectively is.
a) $2(ab+bc+ca)$ b) $4(ab+bc+ca)$
c) $8(a+b)c$ d) none of these
4. The sum of the areas of all faces (excluding top and bottom) of a cuboid is the _____ of the cuboid.
a) volume b) lateral surface area
c) total surface area d) none of these
5. The volume of a cuboid whose length, breadth and height are $2a$, $3a$ and $4a$ is.
a) $24a^2$ b) $24a^3$ c) $12a^3$ d) none of these
6. The curved surface area of a right circular cylinder of radius $2r$ and height $2h$ is
a) $2\pi rh$ b) $4\pi rh$ c) $8\pi rh$ d) none of these
7. The lateral surface area of a right circular cylinder of radius 3cm is 94.2cm^2 . The height of the cylinder is
a) 5cm b) 4.5cm c) 5.5cm d) none of these
8. If each edge of a cube is doubled, how many times will its volume increase?
a) 2 times b) 4 times c) 8 times d) none of these
9. If the volume of a cube is v , then the side (in terms of v)
a) v^3 b) \sqrt{v} c) $\sqrt[3]{v}$ d) v^2
10. The volume of a cylinder whose diameter is equal to its height is
a) $\pi r^3 h$ b) $\frac{\pi r^3}{8}$ c) $\frac{\pi r^3}{8}$ d) none of these

II) Short answer questions type I (2 mark)

11. Find the height of a cuboid whose volume is 756cm^3 and base area is 63cm^2 ?
12. The dimensions of a cuboid are in the ratio of $2:3:4$ and its total surface area is 280m^2 . Find the dimensions.

13. If the volume of a cube is 512cm^3 . Find the total surface area of the cube
14. The circumference of the base of a right circular is 220cm. If the height of the cylinder is 2m, find the curved surface area of the cylinder.
15. A roller of diameter 70cm and the length 2m is rolling on the ground .What is the area covered by the roller in 50 revolutions?

III) Short answer questions type II (3 mark)

16. A match box is of dimension 4cm by 2.5cm by 1.5cm. What will be the volume of a packet containing 12 such match boxes? How many such packets can be placed in card board box whose size is 60cm x 20cm x 24cm.
17. Two cubes, each of side 6cm, are joined end to end. Find the volume of the resulting cuboid.
18. How many 8cm cubes can be cut out from the cube whose edge is 32cm?
19. The radius and height of a cylinder are in the ratio 5:7 and the volume is 550 cm^3 . Find its total surface area.
20. A rectangular sheet of paper 88cm x 10cm is rolled along its length and a cylinder is formed. Find the volume of the cylinder.

IV) Long answer questions (4 mark)

21. The students of DAV were asked to participate in a competition for making and decorating penholders in the shape of a cylinder with the base, using cardboard. Each penholder was to be of radius 3cm and height 10.5cm. The school was to supply the competitors with cardboard. If there were 35 competitors, how much cardboard was required to be bought for the competition?
22. A cuboid is of dimensions 60cm x 54cm x 30cm. How many small cubes of side 6cm can be placed in the given cuboid.
23. The area of the base of a right circular cylinder is 15400 cm^2 and its volume is 92400 cm^3 . Find the area of the curved surface.
24. A cube of side 5cm is cut into 1 cm cubes. Find the percentage increase in volume after such cutting.
25. The bottom of a tank measures 50m x 40m. Find its depth if it contains 4000m^3 of water.
26. A closed cylindrical tank of radius 7m and height 3m is made from a sheet of metal. How much sheet of metal is required?
27. A suitcase with measures 80cm x 48cm x 24cm is to be covered with a tarpaulin cloth. How many meters of tarpaulin of width 96cm is required to cover 100 such suitcase.
28. The lateral surface area of a hollow cylinder is 6600m^2 . It is cut along its height and formed a rectangular sheet of width 30cm. Find the perimeter of rectangular sheet.
29. A swimming pool is 40m in length, 20m in breadth and 5m in depth. Find the cost of cementing its four walls and floor at the rate of 10 per m^2 .
30. Two cylinders of same volume have their radii in the ratio 1:6. Find the ratio of their heights.

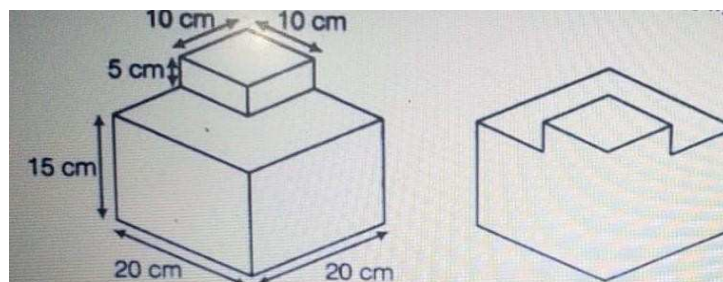
CLASS-VIII
SUB-MATHEMATICS
MENSURATION(SURFACE AREA AND VOLUME)
Worksheet-2(Standard)

I) Multiple choice questions (1 mark)

1. A cuboid is 40cm x 20cm x 10cm. What would be the side of a cube having the same volume?
a) 20cm b) 40cm c) 10cm d) 30cm
2. If each side of a cube is doubled then its volume
a) is doubled b) becomes 4 times
c) becomes 6 times d) becomes 8 times
3. The curved surface area of a cylindrical pillar is 264m^2 and its volume is 924m^3 . The ratio of its diameter to its height is.
a) 3:7 b) 7:3 c) 6:7 d) 7:6
4. A square sheet of paper is converted into cylinder by rolling it along its length. What will be the ratio of the base radius to the side of a square?
a) $1:2\pi$ b) $2\pi:1$ c) 1:1 d) $1:\pi$
5. If the radius of a right circular cylinder is decreased by 50% and its height is increased by 60%, its volume will be decreased by
a) 10% b) 60% c) 40% d) 20%

II) Short answer questions type I (2 mark)

6. A birthday cake has two tiers as shown in the figure below. Find the volume of the cake.



7. A solid cube with an edge 10 cm is melted to form two equal cubes. Find the ratio of the edge of the smaller cube to the edge of the bigger cube.
8. Two cubes have their volumes in the ratio 8:27. Find the ratio of their surface area.
9. If the capacity of a cylindrical tank is 1848m^3 and the diameter of its base is 14m. Find the depth of the tank.

10. A school provides milk to the students daily in a cylindrical glasses of diameter 7cm.If the glass is filled with milk up to height of 12cm,find how many litres of milk is needed to serve 1600 students.

III) Short answer questions type II (3 mark)

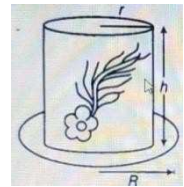
11. A cuboid has a volume of 3000cm^3 , with height 15cm and length 20cm. Find the area of the upper surface
12. An iron cube has each side equal to 5cm.Find its volume and also its weight in Kg if 1 cu.cm of iron weighs 50 grams.
13. The sum of length, breadth and depth of a cuboid is 19cm and the diagonal is $5\sqrt{5}$.Find its surface area.
14. A lateral surface area of a hollow cylinder is 4224 cm^2 it is cut along its height and formed a rectangular sheet of width 32cm.Find the perimeter of the rectangular sheet.
15. A boy is cycling such that the wheels of the cycle are making 140 revolutions per hour.If the diameter of the wheel is 60cm,then calculate the speed (in km/hr) with which the boy is cycling.

IV) Long answer type questions (4 mark)

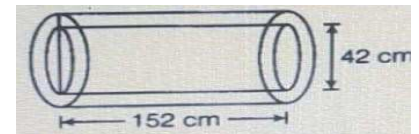
16. Eight identical cuboidal wooden blocks are stacked one on top of the other. The total volume of the solid formed is 128cm^3 if the height of each block is 1cm and the base is a square .Find the dimension of each block.
17. A metallic sheet is of rectangular shape with dimensions 48m x 36m. From each of its corner, a square is cut off to make an open box. The length of the square is 8m.Find the volume of the box.
18. A hollow iron pipe is 21cm long and its external diameter is 8cm.If the thickness of the pipe is 1cm and iron weighs 8g/cm^3 , find the weight of the pipe.
19. The ratio of radii of two cylinders is 1:2 and the heights are in the ratio 2:3. Find the ratio of their volumes.
20. Four times the area of a curved surface area of a cylinder is equal to the six times the sum of the area of its base. If the height is 12cm , find its curved surface area.

CLASS-VIII
SUB-MATHEMATICS
MENSURATION(SURFACE AREA AND VOLUME)
Worksheet-3(Advance)

1. How many bricks of size 22cm x 10 cm x 7 cm are required to construct a wall 11m long , 3.5 m high and 40 cm thick, if the cement and sand used in the construction occupy $\frac{1}{10}$ th part of the wall.
2. The area of a side of a box is 120sq cm. The area of the other side of the box is 72 sq cm. If the area of the upper surface of the box is 60sq cm then find the volume of the box.
3. A cylindrical tank has a radius of 154cm.It is filled with water to a height of 3m.If water to a height of 4.5m is poured into it, what will be the increase in the volume of water in kilo litres.
4. A rectangular examination hall having seats for 500 candidates has to be built so, as to allow 4 cubic meters of air and 0.5 square meters of floor area per candidate. If the length of the hall is 25m.Find the height and breadth of the hall.
5. In the given figure R is the radius of the base of the hat. Find the total outer surface area of the hat.



6. A hollow garden roller of 42cm diameter and length 152cm is made of cast iron 2cm thick. Find the volume of iron used in the roller.



7. A rectangular tank is 225m by 162m at the base. With what speed must the water flow into it through an aperture 60cm by 45cm that the level may be raised 20cm in 5 hours.
8. A well with 20m diameter is dug 28m deep. Earth taken out of it spread all around to a width of 10m to form an embankment. Find the height of embankment.
9. A wooden box including the lid has external dimensions 40cm x 34cm x 30cm.If the wood is 1cm thick, how many cm^3 of wood is used in it.
10. Three cubes with sides in the ratio 3:4:5 are melted to form a single cube whose diagonal is $12\sqrt{3}$ cm. Find the sides of the cube.