SPHERE

Surface Area of a Sphere $A = 4 \pi r^2$ Volume of a Sphere $V = (4/3) \pi r^3$

HEMISPHERE

Surface Area of Hemisphere = $3 \pi r^2$ Curved surface area of hemisphere = $2 \pi r^2$ Volume of a Hemisphere = $(2/3) \pi r^3$

A sphere of diameter 18 cm is dropped into a cylindrical vessel of diameter 36 cm, partly filled with water. If the sphere is completely submerged, then calculate the rise of water level (in cm).

Find the number of solid spheres, each of diameter 6 cm that can be made by melting a solid metal cylinder of height 45 cm and diameter 4 cm.

The radius of a sphere is equal to the radius of a cone and the volume of the sphere is equal to the volume of the cone. Find the curved surface area of the sphere when the height of the cone is 28 m.



CONE Slant Height, $l = \sqrt{r^2 + h^2}$ Volume(V) = $\frac{1}{3}\pi r^2$ h cubic units. The total surface area = $\pi r l + \pi r^2$ = $\pi r(l + r)$

The heights of two right circular cones are in the ratio $1 \div 5$ and the perimeter of their bases are in the ratio $5 \div 3$. Find the ratio of their volumes.

The curved surface area of a cylinder is five times the area of its base. What is the ratio of radius and height of the cylinder?

A cylinder of height 8 cm and radius 6 cm is melted and converted into 3 cones of the same radius and height that of cylinder. Determine the total curved surface area of cones.

Find the volume of a cone which has a base radius of 8 cm and slant height (l) of 13 cm.

You are given a right circular cone with height 5 cm. The radius is twice the length of the height. What is the volume?



CYLINDER

Volume of the Cylinder, V = $\pi r^2 h$ cubic units

Curved Surface Area = $2\pi rh$ square units

Total surface area, $A = 2\pi r(r+h)$ square units

The height of a cylinder is 2 times the radius of base of cylinder. If the area of base of the cylinder is 154 cm2. Find the curved surface area of the cylinder.

A cylindrical rod of iron whose radius is one-fourth of its height is melted and cast into spherical balls of the same radius as that of the cylinder. What is the number of spherical balls?

From a solid cylinder of height 4 cm and radius 3 cm, a conical cavity of height 4 cm and of base radius 3 cm is Followed out. What is the total surface area of the remaining solid?

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10 cylindrical pillars of building have to be painted. The diameter of each pillar is 70 cm and the height is 4 m. What is the cost of painting at the rate of Rs. 5 per square metre?



CUBE



Volume of cube = a^3

Surface area of the cube formula = $6a^2$

Lateral Surface Area of a Cube = $4a^2$

Diagonal of a cube formula = $a\sqrt{3}$

CUBOID

Total Surface Area of Cuboid= 2(lb + bh +lh)

Lateral Surface Area of Cuboid= 2h(l +b)

Volume of the cuboid = (length × breadth × height)

Diagonal of the cuboid =√(length²+ breadth²+ height²)

Perimeter of cuboid = 4 (length + breadth + height)



A cube with an edge of 7 cm and a cuboid measuring 7 cm × 4 cm × 8 am are kept on a table. Which shape has more volume?

A brick measures 15 cm in length, 8 cm in breadth and 5 cm in height. How many bricks will be used to make a wall of length 15 m, breadth 10 m and height 8 metres?

A gift in the form of cube has to be wrapped with gift paper whose external measures are 15 cm. Find the area of gift paper needed.

If the surface area of a cuboid is 108 cm2, find the height of the cuboid. The length and breadth the cuboid is 6 and 3 cm respectively

Find the side of the cube whose surface area is 384m2.

A cuboid box is having measurements 5m × 8m × 12m. How many cube boxes having side 2m can be kept inside the cuboid box?

If the edge of a cube is doubled then how many times the volume will increase?





Railway Exam #FeelFreetoLearn