YugVanta

Class 10 Maths Part 2

7. Mensuration

SET C (Hard Level | Maharashtra Board)

1. A cone and a cylinder have the same height and radius. Find the ratio of their total surface areas.
2. A cone of height 15 cm and base radius 8 cm is cut by a plane parallel to the base, 9 cm above the base. Find the volume of the smaller cone formed at the top.
3. A right circular cone is inscribed in a sphere of radius 14 cm. Find the height and volume of the cone.
4. A frustum of a cone has slant height 25 cm and radii of two circular ends as 7 cm and 24 cm. Find the curved surface area and volume of the frustum.
5. Two cones have equal volumes but their heights are in the ratio 1:3. Find the ratio of their base radii.
6. A cylindrical vessel has an internal radius of 7 cm and height 15 cm. It is filled with water to a height of 10 cm. Find the volume of water in the vessel.
7. A sphere is inscribed in a cube. Find the ratio of the volume of the sphere to the volume of the cube.
8. A cylindrical tank has a height of 18 m and base radius of 7 m. Water is filled to half the height of the tank. Find the surface area of the water in contact with air (including top surface and curved surface).
9. A solid hemisphere is melted and recast into a number of small cones, each with radius 2 cm and height 3 cm. Find the number of cones formed.
10. The base radius of a cone is increased by 20% and its height is decreased by 10%. Find the percentage change in volume.
11. A sphere is circumscribed by a right circular cylinder. The height of the cylinder is equal to the diameter of the sphere. Find the curved surface area and total surface area of the cylinder in terms of the radius of the sphere.
12. A cone of height 24 cm and base radius 7 cm is cut by a plane parallel to the base at a distance of 10 cm from the vertex. Find the surface area of the frustum formed.
13. A cone of base radius 6 cm and height 8 cm is hollowed out from a cube of side 10 cm. Find the volume of the remaining solid.
14. A sphere and a cylinder have the same surface area of 616 cm^2. The height of the cylinder is twice its radius. Find the radius of the sphere and the cylinder.
15. A hemispherical bowl of radius 21 cm is filled with water to half its height. Find the volume of water in the bowl.

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16. A metal sphere of radius 10 cm is melted and recast into cylinders each having radius 2 cm and height 15 cm. Find how many such cylinders can be made.
17. The diagonal of a cuboid is 15 cm. If the length and breadth are 9 cm and 6 cm respectively, find the height of the cuboid.
18. A sphere is cut into two parts by a plane such that the volume of the smaller part is half the volume of the larger part. Find the height of the smaller part.
19. A cone with height 21 cm and base radius 10 cm is filled with water. Water is poured out until the height of water in the cone is 14 cm. Find the volume of water poured out.
20. A hemisphere is cut by a plane parallel to its base, such that the curved surface area of the smaller part is one-fourth the curved surface area of the original hemisphere. Find the height of the smaller part.