EduSahara™ Assignment

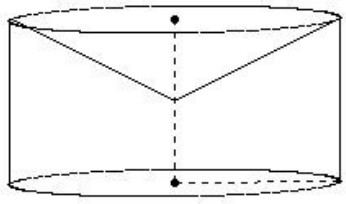
Name : Volume of a Combination of Solids

Chapter : Cone and Sphere

Grade : ICSE Grade X

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1. From a solid cylinder of height 10.00 cm and base radius 10.00 cm, a conical cavity of height 5.00 cm and base radius 10.00 cm is drilled out. Find the volume of the resulting solid



(i) 2469.05 cu.cm (ii) 2739.05 cu.cm (iii) 2619.05 cu.cm (iv) 2399.05 cu.cm (v) 2649.05 cu.cm

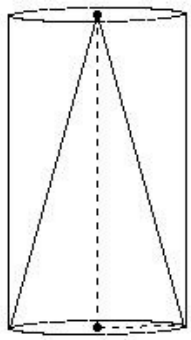
2. A solid metallic cylinder of base radius 12.00 cm and height 25.00 cm is melted to form cones each of height 1.00 cm and radius 1.00 cm . Find the number of complete cones formed

(i) 10000 (ii) 8200 (iii) 10800 (iv) 13600 (v) 12300

3. A conical vessel, whose internal radius is 4.50 cm and height 17.00 cm, is full of liquid . Its contents are emptied into a cylindrical vessel with internal radius 3.00 cm. Find the height to which the liquid rises in the cylindrical vessel.

(i) 7.75 cm (ii) 17.75 cm (iii) 12.75 cm (iv) 9.75 cm (v) 15.75 cm

4. From a circular cylinder of diameter 10.00 cm and height 18.00 cm, a conical cavity of the same base radius and of the same height is hollowed out. Find the volume of the remaining solid.



(i) 970.86 cu.cm (ii) 930.86 cu.cm (iii) 942.86 cu.cm (iv) 959.86 cu.cm (v) 917.86 cu.cm

5. A cone of maximum volume is carved out of a cube of edge 17.00 cm. Find the volume of the remaining material after the cone is carved out

(i) 3656.26 cu.cm (ii) 3586.26 cu.cm (iii) 3906.26 cu.cm (iv) 3626.26 cu.cm (v) 3386.26 cu.cm

6. A cone of maximum volume is carved out of a cuboid of dimensions 30.00 cm×30.00 cm×28.00 cm. Find the volume of the remaining material after the cone is carved out

(i) 17200.00 cu.cm (ii) 16800.00 cu.cm (iii) 21100.00 cu.cm (iv) 19300.00 cu.cm (v) 18600.00 cu.cm

7. An open cylindrical vessel of internal diameter 18.00 cm and height 21.00 cm stands on a horizontal table. Inside this is placed a solid metallic right circular cone, the diameter of whose base is 9.00 cm and height 21.00 cm and filled with water. If the cone is replaced by another cone whose height is 10.50 cm and base radius is 2.25 cm, find the drop in the water level.

(i) 9.53 cm (ii) 0.53 cm (iii) 2.53 cm (iv) 1.53 cm (v) 3.53 cm

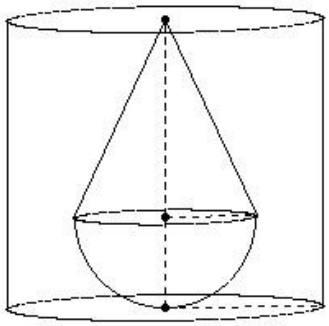
8. A cylindrical vessel of base radius 23.00 cm contains water . A solid sphere of radius 14.00 cm is immersed completely in the water. Find the rise in the water level in the vessel

(i) 8.92 cm (ii) 4.92 cm (iii) 5.92 cm (iv) 6.92 cm (v) 7.92 cm

9. Marbles of diameter 1.60 cm are dropped into a cylindrical beaker containing some water. When they are fully submerged, the water level rises by 9.6 cm. If the diameter of the beaker is 25.60 cm, find the number of marbles that are dropped in it

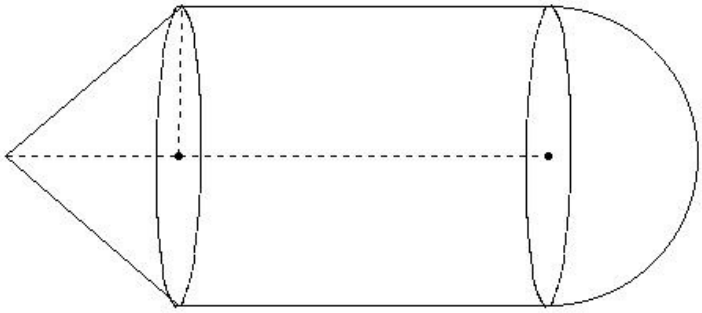
(i) 2454 (ii) 2284 (iii) 2304 (iv) 2384 (v) 2164

10. A solid consisting of a right circular cone, standing on a hemisphere is placed upright, in a right circular cylinder full of water and touches the bottom. The radius of the cylinder is 9.50 cm and height is 17.50 cm. The radius of the hemisphere is 5.50 cm and the height of the cone is 12.00 cm. Find the volume of water left in the cylinder.



(i) 4214.87 cu.cm (ii) 4234.87 cu.cm (iii) 3974.87 cu.cm (iv) 4504.87 cu.cm (v) 4304.87 cu.cm

11. A solid consists of a right circular cylinder with a hemisphere on one end and a cone on the other . The radius and height of the cylindrical part are 9.50 cm and 23.50 cm respectively. The radii of the hemispherical and conical parts are the same as that of the cylindrical part. Calculate the volume of the solid, if the height of the conical part is 11.00 cm



(i) 9272.04 cu.cm (ii) 9632.04 cu.cm (iii) 9362.04 cu.cm (iv) 9552.04 cu.cm (v) 9502.04 cu.cm

12. A conical vessel of radius 3.00 cm and height 4.00 cm is completely filled with water. A sphere is lowered into the water and its size is such that when it touches the sides, it is just immersed. Find the fraction of the water that overflows

(i) $\frac{3}{8}$ (ii) $\frac{1}{2}$ (iii) $\frac{3}{10}$ (iv) $\frac{5}{8}$ (v) $\frac{1}{8}$

13. A well of diameter 14.00 m is dug to a depth of 14.00 m and the soil from digging is evenly spread out to form a platform of base dimensions 18.00 m×28.00 m . Find the height of the platform

(i) 3.28 m (ii) 2.28 m (iii) 6.28 m (iv) 4.28 m (v) 5.28 m

14. A well of diameter 14.00 m is dug to a depth of 11.00 m . The soil taken out of it has been spread evenly all around it in the shape of a circular ring of width 14m to form an embankment. Find the height of the embankment.

(i) 1.37 m (ii) 9.37 m (iii) 3.37 m (iv) 0.37 m (v) 2.37 m

15. An ice cream container has the shape of a right circular cylinder having inner diameter 26.00 cm and height 32.00 cm . The ice cream is filled into cones of diameter 15.00 cm and height 10.00 cm , having a hemispherical shape on the top. Find the number of such complete cones which can be filled with ice cream

(i) 6 (ii) 11 (iii) 14 (iv) 8 (v) 16

16. Water in a canal, 13 m wide and 3 m deep is flowing with a speed of 10 kmph . How much area will it irrigate in 50 min, if 6 cm of standing water is needed ?

(i) 5416666.67 sq.m (ii) 5246666.67 sq.m (iii) 5546666.67 sq.m (iv) 5596666.67 sq.m

(v) 5336666.67 sq.m

17. A farmer connects a pipe of internal diameter 20 cm from a canal into a cylindrical tank in his field, which is 4 m in diameter and 5 m deep.

If water flows through the pipe at the rate of $\frac{5}{2}$ kmph , in how much time will the tank be filled ?

(i) 48.00 min (ii) 51.00 min (iii) 43.00 min (iv) 45.00 min (v) 53.00 min

## Assignment Key

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|---|---|---|---|---|---|
| 1) (iii) | 2) (iii) | 3) (iii) | 4) (iii) | 5) (iv) | 6) (v) |
| 7) (iv) | 8) (iv) | 9) (iii) | 10) (ii) | 11) (v) | 12) (i) |
| 13) (iv) | 14) (i) | 15) (ii) | 16) (i) | 17) (i) | |

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