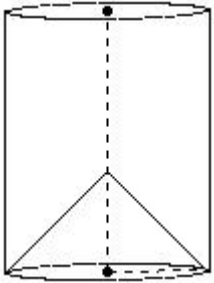# EduSahara™ Learning Center Assignment

Grade : **Class X, ICSE**
Chapter : **Cone and Sphere**
Name : **Volume of a Combination of Solids**

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1. From a solid cylinder of height 13.00 cm and base radius 5.00 cm, a conical cavity of height 5.00 cm and base radius 5.00 cm is drilled out. Find the volume of the resulting solid

   (i)   917.48 cu.cm (ii) 875.48 cu.cm (iii) 897.48 cu.cm

   (iv) 890.48 cu.cm (v) 878.48 cu.cm

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2. A solid metallic cylinder of base radius 12.00 cm and height 23.00 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)   10016 (ii) 10056 (iii) 9936

   (iv) 9806   (v) 9796

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3. A conical vessel, whose internal radius is 3.50 cm and height 20.00 cm, is full of liquid . Its contents are emptied into a cylindrical vessel with internal radius 1.00 cm. Find the height to which the liquid rises in the cylindrical vessel.

   (i)   86.67 cm (ii) 78.67 cm (iii) 76.67 cm

   (iv) 81.67 cm (v) 84.67 cm

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4. From a circular cylinder of diameter 11.00 cm and height 17.00 cm, a conical cavity of the same base radius and of the same height is hollowed out. Find the volume of the remaining solid.
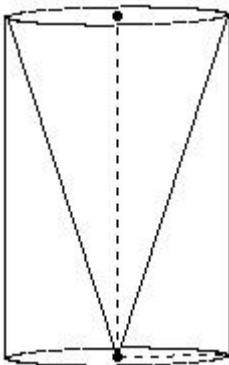
   (i)   947.48 cu.cm   (ii) 1197.48 cu.cm (iii) 1057.48 cu.cm

   (iv) 1077.48 cu.cm (v) 1247.48 cu.cm

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5. A cone of maximum volume is carved out of a cube of edge 27.00 cm. Find the volume of the cone

   (i)   5155.07 cu.cm (ii) 5375.07 cu.cm (iii) 5095.07 cu.cm

   (iv)   (v)

4895.07 cu.cm   5175.07 cu.cm

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6. A cone of maximum volume is carved out of a cuboid of dimensions 23.00 cm✕23.00 cm✕7.00 cm. Find the volume of the cone

(i)   972.83 cu.cm (ii) 994.83 cu.cm (iii) 941.83 cu.cm

(iv) 953.83 cu.cm (v) 969.83 cu.cm

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7. An open cylindrical vessel of internal diameter 29.00 cm and height 11.00 cm stands on a horizontal table. Inside this is placed a solid metallic right circular cone, the diameter of whose base is 14.50 cm and height 11.00 cm and filled with water. If the cone is replaced by another cone whose height is 6.60 cm and base radius is 2.17 cm, find the drop in the water level.

(i)   7.87 cm (ii) 1.87 cm (iii) 2.87 cm

(iv) 0.87 cm (v) 8.87 cm

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8. A cylindrical vessel of base radius 27.00 cm contains water . A solid sphere of radius 19.00 cm is immersed completely in the water. Find the rise in the water level in the vessel

(i)   15.55 cm (ii) 17.55 cm (iii) 7.55 cm

(iv) 9.55 cm   (v) 12.55 cm

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9. Marbles of diameter 1.40 cm are dropped into a cylindrical beaker containing some water. When they are fully submerged, the water level rises by 8.4 cm. If the diameter of the beaker is 28.00 cm, find the number of marbles that are dropped in it

(i) 3520 (ii) 3730 (iii) 3600 (iv) 3760 (v) 3350

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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 15.00 cm and height is 27.00 cm. The radius of the hemisphere is 10.00 cm and the height of the cone is 13.00 cm. Find the volume of water left in the cylinder.
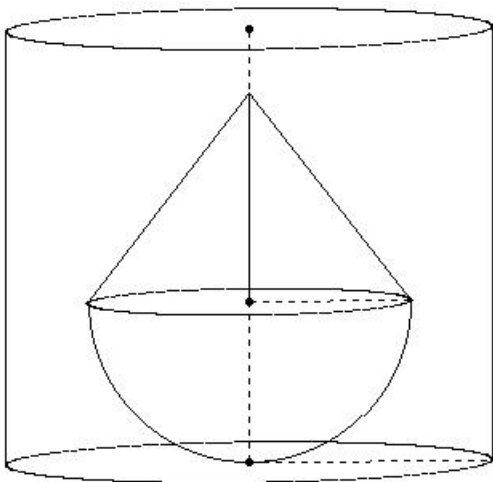
(i)   17935.71 cu.cm (ii) 15635.71 cu.cm (iii) 13835.71 cu.cm

(iv) 17435.71 cu.cm (v) 14235.71 cu.cm

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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 6.00 cm and 22.00 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 14.00 cm
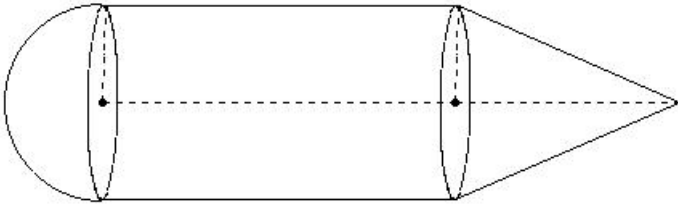
   (i)   3349.71 cu.cm (ii) 3519.71 cu.cm (iii) 3629.71 cu.cm

   (iv) 3299.71 cu.cm (v) 3469.71 cu.cm

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

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13. A well of diameter 20.00 mt is dug to a depth of 16.00 mt and the soil from digging is evenly spread out to form a platform of base dimensions 25.00 mt$\times$31.00 mt . Find the height of the platform

   (i)   6.49 mt (ii) 8.49 mt (iii) 5.49 mt

   (iv) 7.49 mt (v) 4.49 mt

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14. A well of diameter 15.00 mt is dug to a depth of 11.00 mt . The soil taken out of it has been spread evenly all around it in the shape of a circular ring of width 12mt to form an embankment. Find the height of the embankment.

   (i)   2.91 mt (ii) 1.91 mt (iii) 0.91 mt

   (iv) 9.91 mt (v) 3.91 mt

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15. An ice cream container has the shape of a right circular cylinder having inner diameter 20.00 cm and height 28.00 cm . The ice cream is filled into cones of diameter 10.00 cm and height 18.00 cm , having a hemispherical shape on the top. Find the number of such complete cones which can be filled with ice cream

   (i) 15 (ii) 12 (iii) 9 (iv) 17 (v) 7

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16. Water in a canal, 18 mt wide and 4 mt deep is flowing with a speed of 7 kmph . How much area will it irrigate in 50 min., if 5 cm of standing water is needed ?

   (i)   8170000.00 sq.mts (ii) 8380000.00 sq.mts (iii) 8400000.00 sq.mts

   (iv) 8570000.00 sq.mts (v) 8580000.00 sq.mts

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17. A farmer connects a pipe of internal diameter 40 cm

from a canal into a cylindrical tank in his field,

which is 10 mt in diameter and 4 mt deep.

If water flows through the pipe at the rate of $\dfrac{25}{11}$ kmph ,

in how much time will the tank be filled ?

   (i)   69.00 min. (ii) 71.00 min. (iii) 61.00 min.

   (iv) 66.00 min. (v) 63.00 min.

Assignment Key

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