EduSahara™ Learning Center Assignment

Grade : Class X, SSC
Chapter : Mensuration
Name : Conversion of Solid from One Shape to Another

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1. The height of a right circular cone is 12.00 cm and the radius of its base is 10.00 cm. It is melted and recast into a right circular cone with base radius 5.00 cm. Find the new height

   (i) 48.00 cm (ii) 53.00 cm (iii) 43.00 cm

   (iv) 45.00 cm (v) 51.00 cm

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2. A solid metallic cylinder of base radius 10.00 cm and height 6.00 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) 1800 (ii) 1740 (iii) 1680

   (iv) 1930 (v) 1880

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3. A conical vessel, whose internal radius is 13.50 cm and height 15.00 cm, is full of liquid . Its contents are emptied into a cylindrical vessel with internal radius 4.00 cm. Find the height to which the liquid rises in the cylindrical vessel.

   (i) 53.95 cm (ii) 51.95 cm (iii) 61.95 cm

   (iv) 59.95 cm (v) 56.95 cm

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4. A hollow metallic cylindrical tube has an internal radius of 12.50 cm and height 27.00 cm. The thickness of the metal is 4.5 cm .The tube is melted to cast into a right circular cone of height 8.00 cm. Find the radius of the cone.

   (i) 41.66 cm (ii) 31.66 cm (iii) 39.66 cm

   (iv) 33.66 cm (v) 36.66 cm

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5. An open cylindrical vessel of internal diameter 29.00 cm and height 26.00 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 26.00 cm and filled with water. If the cone is replaced by another cone whose height is 15.60 cm and base radius is 2.90 cm, find the drop in the water level.

   (i) 2.96 cm (ii) 1.96 cm (iii) 3.96 cm

   (iv) 9.96 cm (v) 0.96 cm

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6. The surface area of a solid metallic sphere is 1810.29 sq.cm. It is melted and recasted into solid right circular cones of radius 3.60 cm and height 6.00 cm . Find the number of complete cones that can be made

   (i) 88 (ii) 93 (iii) 83 (iv) 91 (v) 85

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7. A hollow sphere of internal and external diameters 14.00 cm and 24.00 cm respectively is melted into a cone of base diameter 10.00 cm. Find the height of the cone

   (i) 221.60 cm (ii) 247.60 cm (iii) 218.60 cm

   (iv) 229.60 cm (v) 205.60 cm

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8. A cylindrical vessel of base radius 24.00 cm contains water . A solid sphere of radius 18.00 cm is immersed completely in the water. Find the rise in the water level in the vessel

   (i) 13.50 cm (ii) 10.50 cm (iii) 8.50 cm

(iv) 18.50 cm (v) 16.50 cm

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9. Marbles of diameter 2.00 cm are dropped into a cylindrical beaker containing some water. When they are fully submerged, the water level rises by 16 cm. If the diameter of the beaker is 8.00 cm, find the number of marbles that are dropped in it

(i) 207 (ii) 219 (iii) 169 (iv) 192 (v) 190

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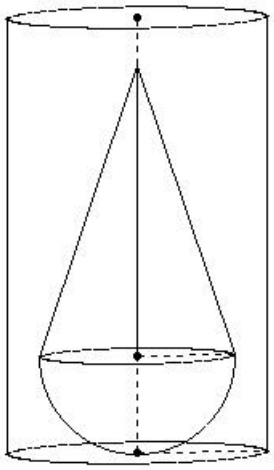
10. A solid consisting of a right circular cone, standing on a hemisphere is placed upright, in a right circular cylinder full of water and touches the bottom. The radius of the cylinder is 8.00 cm and height is 27.00 cm. The radius of the hemisphere is 6.00 cm and the height of the cone is 18.00 cm. Find the volume of water left in the cylinder.



(i) 4539.43 cu.cm (ii) 4179.43 cu.cm (iii) 4299.43 cu.cm

(iv) 4269.43 cu.cm (v) 4459.43 cu.cm

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11. A conical vessel of radius 6.00 cm and height 8.00 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) $\frac{1}{2}$ (ii) $\frac{1}{8}$ (iii) $\frac{5}{8}$ (iv) $\frac{3}{8}$ (v) $\frac{3}{10}$

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12. A metallic sphere of radius 10.00 cm is melted to recast into the shape of a cylinder of radius 14.00 cm . Find the height of the cylinder.

(i) 8.80 cm (ii) 4.80 cm (iii) 7.80 cm

(iv) 5.80 cm (v) 6.80 cm

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13. Metallic spheres of radii 15.00 cm, 14.00 cm are melted to form a single solid sphere. Find the radius of the resulting sphere.

(i) $\sqrt[3]{6119}$ cm (ii) 6119 cm (iii) $\sqrt[5]{6119}$ cm

(iv) $\sqrt[3]{6121}$ cm (v) $\sqrt[3]{6117}$ cm

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14. A well of diameter 13.00 mt is dug to a depth of 11.00 mt and the soil from digging is evenly spread out to form a platform of base dimensions 14.00 mt$\times$26.00 mt . Find the height of the platform

(i) 3.01 mt (ii) 5.01 mt (iii) 6.01 mt

(iv) 2.01 mt (v) 4.01 mt

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15. A well of diameter 11.00 mt is dug to a depth of 16.00 mt . The soil taken out of it has been spread evenly all around it in the shape of a circular ring of width 4mt to form an embankment. Find the height of the embankment.

(i) 7.07 mt (ii) 10.07 mt (iii) 6.07 mt

(iv) 9.07 mt (v) 8.07 mt

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16. An ice cream container has the shape of a right circular cylinder having inner diameter 34.00 cm and height 43.00 cm . The ice cream is filled into cones of diameter 11.00 cm and height 11.00 cm , having a hemispherical shape on the top. Find the number of such complete cones which can be filled with ice cream

(i) 61 (ii) 56 (iii) 51 (iv) 53 (v) 59

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17. A cylinder with radius 8.00 cm and height 6.00 cm is melted to recast into a cone of height 72.00 cm. Find the radius of the cone.

(i) 5.00 cm (ii) 4.00 cm (iii) 3.00 cm

(iv) 2.00 cm (v) 6.00 cm

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18. A copper sphere having a radius of 5.00 cm is melted and drawn into a cylindrical wire of radius 0.60 cm. Calculate the length of the wire.

(i) 6.63 mt (ii) 4.63 mt (iii) 3.63 mt

(iv) 5.63 mt (v) 2.63 mt

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19. A copper rod of diameter 1.40 cm and length 6.00 cm is drawn into a wire of length 188.16 mt of uniform thickness. Find the thickness of the wire.

(i) $\frac{1}{40}$ cm (ii) $\frac{1}{20}$ cm (iii) $\frac{1}{80}$ cm

(iv) $\frac{3}{80}$ cm (v) 0 cm

Assignment Key

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