



MATHS

BOOKS - MBD NCERT SOLUTIONS

SURFACE AREAS AND VOLUMES

Multiple Choice Questions

1. The volume of the cuboid, whose length, breadth and height are 12cm, 10cm and 8cm respectively is :

A. $592m^3$

B. $960m^3$

C. $480 m^3$

D. None of these

Answer: B



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2. The volume of the coboid, whose length, breadth and height are 10cm, 8 cm and 6cm respectively is :

A. 460 cm^3

B. 480 cm^3

C. 520 cm^3

D. None of these

Answer: B



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3. The volume of the cuboid, whose length, breadth and height are 10m, 8m and 5m respectively is :

A. $400m^3$

B. $200 m^3$

C. $300m^3$

D. None of these

Answer: A



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4. The volume of the cuboid, whose length, breadth and height are 13m, 10m and 8 m respectively is :

A. $1040 m^3$

B. $1060 m^3$

C. $1020 m^3$

D. None of these

Answer: A



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5. The radius of the base of a cone is 4cm and the height is 3cm. Its CSA is $\left(\pi = \frac{22}{7} \right)$:

A. 20 cm^2

B. $20\pi \text{ cm}^2$

C. $30\pi \text{ cm}^2$

D. None of these

Answer: B



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6. The radius of the base of a cone is 4 cm and slant height is 5cm. Its CSA is :

A. 20 cm^2

B. $20\pi \text{ cm}^2$

C. $30\pi \text{ cm}^2$

D. $80\pi \text{ cm}^2$

Answer: B



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7. CSA of a hemisphere having radius 4 cm will be :

A. $32 \pi cm^2$

B. $16 \pi cm^2$

C. $64\pi cm^2$

D. None of these

Answer: A



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8. Base area of hemisphere having base radius
r cm will be :

A. $2\pi r^2$

B. πr^2

C. $3\pi r$

D. $2\pi r^3$

Answer: B



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9. The radius of the base of a cone is 7 cm and the height is 6cm. Its volume is $\left(\pi = \frac{22}{7}\right)$:

A. 924 cm^3

B. 308 cm^3

C. 1232 cm^3

D. None of these

Answer: B



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10. The radius of the base of a cylinder is 14 cm and height is 6 cm. The volume of the cylinder is :

A. 196π

B. 392π

C. 1176π

D. None of these

Answer: C



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11. The radius of base of cone is 3.5 cm and height is 9 cm. Its volume is :

A. 36.75π

B. 110.25π

C. 330.75π

D. None of these

Answer: A



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12. The radius of base of cylinder is 2.1 cm and height is 5 cm. Its volume is :

A. 22.05π

B. 7.35π

C. 21π

D. None of these

Answer: A



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13. The volume of a vessel in the form of a right circular cylinder is $567\pi\text{cm}^3$ and its height is 7 cm. The radius of its base is :

A. 8 cm

B. 5 cm

C. 9 cm

D. 6 cm

Answer: C



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14. The surface area of a sphere is 616 cm^2 .

Find its radius.

A. 7cm

B. 8 cm

C. 6 cm

D. 5 cm

Answer: A



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15. A copper rod of radius 2cm and length 7 cm is drawn into a wire of length 112 cm of

uniform thickness. The thickness of the wire is

:

A. 0.5cm

B. 0.7 cm

C. 2 cm

D. 1 cm

Answer: D



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16. The volume of a vessel in the form of a right circular cylinder is $448 \pi \text{cm}^3$ and its height is 7cm. The radius of its base is :

A. 5cm

B. 7cm

C. 9 cm

D. 8 cm

Answer: D



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17. The volume of a cone having radius 3 cm and height 7 cm will be :

A. 166cm^3

B. 486cm^3

C. 462cm^2

D. 66cm^3

Answer: D



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18. The volume of a cylinder having radius and height 4 cm and 8 cm respectively, will be :

A. $128 \pi \text{cm}^3$

B. $\frac{128}{3} \pi \text{cm}^3$

C. $144 \pi \text{cm}^3$

D. $64 \pi \text{cm}^3$

Answer: D



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19. What is the volume of a cuboid if the dimensions are $20\text{ cm} \times 15\text{ cm} \times 3.5\text{ cm}$?

A. 38.5 cm^2

B. 38.5 cm^3

C. 1050 cm^2

D. 1050 cm^3

Answer: D



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20. A metallic sphere of radius 4.2 cm is melted and recast into the shape of a cylinder of radius 6 cm. Find the height of the cylinder.

A. 3.6 cm

B. 3 cm

C. 2.74cm

D. None of these

Answer: C



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21. Conversion of Sphere into cylinder : The diameter of metallic sphere is 6 cm. It is melted and drawn into a wire having diameter of the cross section as 0.2 cm. Find the length of the wire.

A. 34m

B. 12 m

C. 36 m

D. 32m

Answer: C



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22. The volume of a vessel in the form of right circular cylinder is $448\pi\text{cm}^3$ and its height is 7 cm. The radius of its base is :

A. 8 c m

B. 10 cm

C. 6 cm

D. 12 cm

Answer: A



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23. The metallic sphere of radius 6 cm is melted and recast into the sphere of a cylinder of radius 10cm . The height of the cylinder is :

A. 2.8 cm

B. 3.2 cm

C. 4.2 cm

D. 5.7 cm

Answer: A



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24. A cone whose height is 24 cm and radius of base is 6 cm. The volume of the cone is :

A. 288π cu cm

B. 144π cu cm

C. 200π cu cm

D. 36π cu cm.

Answer: A



25. The radius of the base of a right cylinder is 14m and its height is 21m. Its total surface area is :

A. $1848m^2$

B. $1848 m^3$

C. $3080dm^2$

D. $3080 m^2$

Answer: D



26. The diameter of the base of a right circular cylinder is 28 cm and its height is 21cm . Its curved surface area is :

A. $588cm^2$

B. $1848cm^2$

C. $924 cm^2$

D. $1386 cm^2$

Answer: B



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27. A solid sphere of radius 3 cm is melted and recast into a cylinder of radius 2 cm. The height of the cylinder is :

A. 8 cm

B. 9 cm

C. 7 cm

D. 10 cm

Answer: B



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Long Answer Type Questions

1. A vessel in the form of a hollow hemisphere mounted by a hollow cylinder. The diameter of the hemisphere is 14 cm and the total height of the vessel is 13 cm. Find the inner surface area of the vessel.



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2. A metallic sphere of radius 4.2 cm is melted and recast into the shape of a cylinder of radius 6 cm. Find the height of the cylinder.



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3. Metallic spheres of radii 6cm, 8 cm and 10cm, respectively are melted to form a single solid sphere. Find the radius of the resulting sphere.



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4. A metallic sphere of radius 5.6 cm is melted and recast into a shape of cylinder of radius 6cm. Find the height of the cylinder.



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5. A cone of metal of height 24 cm and radius of base 6 cm is melted and recast into a sphere. Find the radius of the sphere.



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6. A metallic sphere of radius 6 cm is melted and recast into a sphere of cone of height 24 cm. Find the radius of base of the cone.



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7. Two cubes each of volume 64cm^3 are joined end to end to find the surface area of the resulting cuboid.



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8. A toy is in the form of a cone of radius 3.5 cm mounted on a hemisphere of same radius. The total height of the toy is 15.5 cm. Find the total surface area of the toy.



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9. Find the volume of a frustum of a cone of height 14cm and the radii of its two circular ends are 4 cm and 2 cm.



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10. A medicine capsule is in the shape of a cylinder with two hemispheres stuck to each of its ends. The length of the entire is 14mm and the diameter of the capsule is 5mm. Find its surface area.



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11. A well of diameter 3 m is dug 14 m deep. The earth taken out of it has been spread evenly all around it in the shape of a circular

ring of width 4 m to form an embankment.

Find the height of the embankment.



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12. The slant height of a frustum of a cone is 4cm and the perimeters of its circular ends are 18cm and 6cm . Find the curved surface areas of the frustum.



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13. How many coins 1.75 in diameter and of thickness 2mm must be melted to form a cuboid of dimensions $5.5\text{cm} \times 10\text{cm} \times 3.5\text{cm}$



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14. A container shaped like a right circular cylinder having radius 6cm and height 15cm is full of ice-cream. The ice-cream is to be filled into cones of height 12 cm and diameter 6cm, having a hemispherical shape on the top. Find

the number of such cones which can be filled with ice-cream.



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15. A farmer connects a pipe of internal diameter 20cm from a canal into a cylinder tank in her field, which is 10m in diameter and 2m deep. If water flows through the pipe at the rate of 3 km / h , in how much time will the tank be filled ?



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16. A fex, the cap used by the Turks, is shaped like the frustum of a cone. If its radius on the open side is 10cm, radius at the upper base is 4cm and its slant height is 15cm, find the area of material used for making it.



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