MATHS

BOOKS - CALCUTTA BOOK HOUSE

MATHS (BENGALI ENGLISH)

SPHERE

Example

1. The volume of a solid sphere of radius 2r units is

A. $\frac{32\pi^3}{3}$ cubic-units

B. $\frac{16\pi^3}{3}$ cubic-units

C. $\frac{8\pi^3}{3}$ cubic-units

D. $\frac{64\pi^3}{3}$ cubic-units

Answer:

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2. If the ratio of volumes of two solid spheres is 1:8, the ratio of their curved surface areas is

A. $1:2$

B. $1:4$

C. $1:8$

D. $1:16$

Answer:

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3. The whole surface area of a solid hemisphere with length of 7 cm radius is

A. 588π sq-cm

B. $392\ \pi$ sq-cm

C. 147π sq-cm

D. $98\ \pi$ sq-cm

Answer:

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4. If the ratio of curved surface areas of two solid spheres is 16:9, the ratio of their volumes is

A. $64:27$

B. $4:3$

C. $27:64$

D. $3:4$

Answer:

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5. If numerical value of curved surface area of a solid sphere is three times of its volume, the length of its radius is

A. 1 unit

B. 2 unit

C. 3 unit

D. 4 unit

Answer:

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6. The radius of a copper-sphere is twice the radius of an iron-sphere. The numerical value of the whole surface area of the copper-sphere

is equal to the numerical value of the volume of the iron-sphere. Then the radius of the copper-sphere will be

A. 6 unit

B. 12 unit

C. 18 unit

D. 24 unit

Answer:

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7. If the volume of a sphere be V cubic-units, then the radius of the sphere will be

A. $\left(\frac{3V}{4\pi}\right)^3$ unit

B. $\frac{3V}{4\pi}$ unit

C. $\sqrt{\frac{3V}{4\pi}}$ units

D. $\sqrt[3]{\frac{3V}{4\pi}}$ units

Answer:

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8. If the radius if a sphere is decreased by $\frac{1}{2}$ times, then the curved surface area of the sphere will be changed by

A. $\frac{1}{2}$ times

B. $\frac{1}{4}$ times

C. $\frac{1}{8}$ times

D. $\frac{1}{16}$ times

Answer:

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9. If the voume of a sphere is incereased by 8 times, then its radius will be increased by

A. 2 times

B. 4 times

C. 6 times

D. 8 times

Answer:

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10. If the external and internal radii of a hollow sphere be 6 cm and 3 cm respectively, then the volume (i.e, the material) of the sphere will be

A. 629 cu-units

B. 792 cu-units

C. 829 cu-units

D. 929 cu-units

Answer:

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11. If the ratio of curved surface areas of two hemisphere is 4:9, then the ratio of their lenghts of radii is 2:3

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12. If the length of radius of a solid sphere be doubled, the volume of sphere will be doubled.

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13. The name of solid which is composed of only one surface is _____.

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14. The number of surface of a solid hemisphere is _____.

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15. If the length of radius of a solid hemisphere is 2r units, its whole surface area is _____ πr^2 sq-units.

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16. The numerical values and whole surface area of a solid hemisphere are equal. Find the length of radius of the hemisphere.

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17. The curved surface area of a solid sphere is equal to the surface area of a solid right circular cylinder. The lengths of both height and diameter of cylinder are 12 cm . Find the length of radius of the sphere.

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18. Whole surface area of a solid hemisphere is equal to the curved surface area of a solid sphere. Find the ratio of lenghts of radius of hemisphere and sphere.

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19. If curved surface area of a solid sphere is S and volume is V, then find the value of $\frac{S^3}{V^2}$ [not putting the value of π].

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20. If the length of radius of a sphere is increased by 50%, how much percent will be increased of its curved surface area?

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21. The diameter of a sphere is double of the diameter of another sphere. Then how much times will be the volume of smaller sphere than the volume of the greater sphere?

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22. What will be the ratio of diameter of a hemisphere and the length of its circumference?

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23. If by melting a solid hemisphere be made into a sphere, then what will be the ratio of their radii?

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24. A circular iron-plate of thickness $\frac{2}{3}$ cm is made by beating an iron-sphere of diameter 4 cm. What will be the radius of the iron-plate?

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25. The external radius of a hollow hemisphere is 6 cm and it is of thickness 2 cm.What will be the whole surface area of the hemisphere?

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26. A large new sphere is made by melting two metal sphere of radii r_1 unit and r_2 unit respectively. Find the radius of the large sphere.

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27. If the cost of making a leather ball is Rs.431.20 at the rate of Rs.17.50 per square cm. Calculate the length of diameter of the ball.

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28. If the length of diameter of a soild sphere is 28 cm and it is completely immersed into

the water then calculate the volume of water displaced by the sphere

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29. The length of radius of a spherical gas ballon increases from 7 cm to 21 cm as air is being pumped into it, then find the ratio of surface areas of the ballon in two cases .

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30. $127\frac{2}{7}$ sq. cm of sheet is required to make a hemispherical bowl. Calculate the length of diameter of the forepart of the bowl.

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31. The length of diameter of a solid sphere of lead si 14 cm .if the sphere is melted, then calculate how many sphers with length of 3.5 cm radius can be made ?

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32. Three spheres made of copper having of 3 cm, 4cm and 5cm radii are melted and a large sphere is made.Calculate the lenghth of the large sphere.

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33. The length of diameter of base of a hemispherical tomb is 42 dcm. Calculate the cost of colouring the upper surface of the tomb at the rate of ₹ 35 per square metre.

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34. Two hollow sphere with the lenghts of diameter 21 cm and 17.5 cm respectively are made from the sheets of the same metal, Calculate the ratio of the curved surface areas of the two hollow sphere.

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35. The curved surface of a solid metalic sphere is cut in such a way that the curved surface area of the new sphere new sphere is half of that previous one. Calculate the ratio of the volumes of the portion cut off and remaining portion of the shere.

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36. on the curved surface of the axis of a globe with the length of 14 cm radius, two circular

holes area made each of which has the length of radius 0.7 cm.Calculate the area of metal sheet surrounding its curved surface.

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37. Calculate how many marbles with lenghts of 1 cm radius may be formed by melting a solid sphere of iron having 8 cm length of radius.

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38. The external and interenal diameter of a hollow copper-sphere are 20 cm and 16 cm respectively . By melting this sphere, how many solid bullets of diameter 4 cm each can be made?

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39. If radius of a sphere be increased by 3 cm, the volume of the sphere is increased by 264 cc. Find the radius of the sphere.

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40. If the radius of a solid sphere be decreased by 1 cm, then the curved surface area of it is decreased by 88 sq-cm. What was the radius of the square?

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41. The external deameter of a hollow gold-sphere is 12 cm and it is made of a plate of thickness 1cm. If the mass of 1cc gold be 19.5

gm and the price of 1 gm gold be ₹ 1280, then what is the price of the whole solid sphere?

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42. Two solid sphere of radii 3 cm and 4 cm are melted to make a hollow sphere of external radius of 6 cm, then wahat will be the thickness of the new hollow sphere?

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43. The ratio of the volumes of two spherers is 216 : 125. If the sum of the radii of the two sphere be 22 cm , then find the radii pf the spheres.

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44. A sphere of greates volume is cut off from a metal hemisphere of radius 6cm. If the cost of 1 cc metal be ₹42, then what will be the cost of the remaining hemisphere?

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45. The external diameter of the forepart of a bowl made of a copper plate of thickness 1 cm is 12 cm.If the weight of 1cc of copper be 12gm, then what will be the weight of the bowl ?

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Exercise

1. If the volume of a solid hemisphere be 19404 cc, then the radius of the hemisphere will be

A. 7 cm

B. 14 cm

C. 21 cm

D. 28 cm

Answer: C

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2. If the ratio of the curved surface area of two spheres b 4:9, then the ratio of the volumes of the spheres will be

A. $2:3$

B. $4:9$

C. $8:27$

D. $16:81$

Answer: C

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3. If the wole surface area of a sphere be 5544 sq-cm, then the volume of the sphere will be

A. 38808 cc

B. 42304 cc

C. 22176 cc

D. 33951 cc

Answer: A

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4. If the numerical values of the volume and curved surface area of a sphere ve equal, then the radius of the sphere will be

A. 1 unit

B. 2 unit

C. $\sqrt{3}$ unit

D. 3 units

Answer: D

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5. The whole surface area of a hollow hemisphere will be

A. 308 sq-cm

B. 462 sq-cm

C. 506 sq-cm

D. 612 sq-cm

Answer: A

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6. If the curved surface area of a globe be $\frac{22}{7}$ sq-cm, then the radius of the sphere will be

A. 0.25 metre

B. 0.5 metre

C. 1 metre

D. 2 metre

Answer: B

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7. If the volume of a sphere be 8 times the volume of another sphere, then the ratio of the curved surface areas of the two spheres will be

A. $2:3$

B. $1:8$

C. 3:16`

D. $1:4$

Answer: D

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8. If the whole surface area of a sphere be πr^2 sq-uints, then the volume of the sphere will be

A. πx^3 cubic-units

B. $\frac{\pi x^3}{6}$ cubic-units

C. $\frac{\pi x^3}{2}$ cubic-units

D. $\frac{4}{3}\pi x^3$ cubic-units

Answer: B

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9. If the diameter of a sphere be 6 cm, then the volume of the sphere will be

A. 18π cc

B. 27π cc

C. 36π cc

D. 45π cc

Answer: C

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10. The ratio of the surface area of a sphere and whole surface area of a hollow hemisphere of same measurement will be

A. $1:1$

B. $2:1$

C. $3:1$

D. $4:3$

Answer: B

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11. If the curved surface area of a sphere be A sq-cm, then the diameter of the sphere will be $\sqrt{\frac{A}{\pi}}$ units.

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12. The curved surface area and the whole surface area of a hollow sphere are the same.

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13. A sphere consists of only one _____.

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14. A hemisphere consists of a curved surface and a _____.

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15. The height of a sphere is equal to its _____.

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16. If a circular iron-plate of thickness $\frac{1}{150}$ cm is made from an iron-sphere of diameter 1 cm , then what will be the radius of the circular plate gt?

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17. The diameter of a hemisphere iron-ball is 42 d cm . Calculate the cost of colouring the

upper surface of it at the rate of ₹1.50 per square-meter.

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18. If a solid large sphere is made by melting three small gold-sphere of radii 3 mm , 4mm, and 5mm, then what will be the radius of the large sphere?

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19. If the radius of a sphere be doubled, then what percent of its whole surface area will be increased ?

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20. How many smaller sphere of diameter 1 cm will be got by meltin a solid lead-sphere of diameter 16cm?

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21. If a solid metal-sphere id made by melting two metal hemisphere of diameter 8cm and 12cm, then what will be the radius of the large metal-sphere?

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22. If the radius of a sphere be decreased by 10%, then what percent of its volume will be decreased ?

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23. Calculate the whole surface area of a hemisphere metal bowl of internal radius 6cm, and of thickness 2cm.

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24. If the ratio of the volume and the whole surface area of a solid sphere be $4:9$ then find the radius of sphere.

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25. If the external dimeter of a hollow iron-sphere be 12cm and the thickness of it be 3cm , then what will be the volume of the sphere?

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26. If three smaller sphrer are made by melting a solid metal sphere of radius of 6cm. If the ratio of the radii of the smaller spheres be3:4:5, then find the diameters of three smaller spheres.

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27. Three smaller circular balls are made by melting a copper spherical ball of radius 3 cm.If the diameter of first two smaller balls be 1.5 cm and 2 cm respectively, then what will be the diameter of third ball?

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28. How many metal sphere of radius 5 mm can be made by melting a metal sphere of

radius 10 cm ?

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29. 6.4 litres and 21.6 liters of water can be put into two hemisphere pot. Then what will be the ratio of their curved surface area ?

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30. The ratio of the volumes of two spheres is 64:27. If the sum of their radii be 7 cm, then

what will be their defference of whole surface area?

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31. The internal and external diameters of a semicircular hollow sphere are 25 cm and 25 cm respectively. Calculate the cost of colouring the hemisphere at the rate ₹0.05 per square meter.

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32. The mass of a hollow iron-sphere of external radius 21cm is $22775\frac{5}{21}$ gms. If the weight of 1 cc iron be 10 gms , then what will be the thickness of the sphere ?

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33. The external and interenal diameter of a hollow metal spheres are 12cm and 10cm respectively. If the density of the metal be 4.9 gm/cc, then find the mass of the hollow sphere.

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34. If the volume of a hollow iron-sphere of thickness 3 cm be $490\frac{2}{7}$cc , then find the external radius of the sphere.

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35. If the radius of a sphere be decreased by 20%,then what percent of its volume will be decreased ?

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36. A hollow sphere of external radius 5 cm and of same thickness is made by melting a solid sphere of radius 4cm , then what will be the thickness of the hollow sphere

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