



MATHS

BOOKS - BEYOND PUBLICATION

MENSURATION

Example

1. The radius of a conical tent is 7 metres and its height is 10 metres. Calculate the length of canvas used in making the tent if width of

canvas is 2m.

$$\left[\text{Use } \pi = \frac{22}{7} \right]$$



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2. An oil drum is in the shape of a cylinder having the following dimensions:

diameter is 2 m. and height is 7 meters. The

painter charges $Rs. 3 \text{ per } m^2$ to paint the

drum. Find the total charges to be paid to the

painter for 10 drums?



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3. A sphere, a cylinder and a cone have the same radius and same height then the ratio of their curved surface areas is



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4. A company wanted to manufacture 1000 hemispherical basins from a thin steel sheet. If the radius of each basin is 21 cm., find the required area of steel sheet required to manufacture the above hemispherical basins ?



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5. A right circular cylinder has base radius 14 cm and height 21 cm. Find its :

- i) Area of base or area of each end
- ii) Curved surface area
- iii) Total surface area and
- iv) Volume of the right circular cylinder.



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6. A right circular cylinder has base radius 14 cm and height 21 cm. Find its :

- i) Area of base or area of each end
- ii) Curved surface area
- iii) Total surface area and
- iv) Volume of the right circular cylinder.



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7. A right circular cylinder has base radius 14 cm and height 21 cm. Find its :

- i) Area of base or area of each end
- ii) Curved surface area
- iii) Total surface area and
- iv) Volume of the right circular cylinder.



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8. Find the volume and surface area of a sphere of radius 2.1 cm. $\left(\pi = \frac{22}{7}\right)$



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9. Find the volume and the total surface area of a hemisphere of radius 3.5 cm. $\left(\pi = \frac{22}{7}\right)$



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10. Consider the following situations. In each find out whether you need volume or area and why?

i) Quantity of water inside a bottle.

ii) Canvas needed for making a tent.

iii) Gas filled in a cylinder.



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11. Consider the following situations. In each find out whether you need volume or area and why ?

i) Quantity of water inside a bottle.

ii) Canvas needed for making a tent.

iii) Gas filled in a cylinder.



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12. Consider the following situations. In each find out whether you need volume or area and why ?

i) Quantity of water inside a bottle.

ii) Canvas needed for making a tent.

iii) Gas filled in a cylinder.



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13. Consider the following situations. In each find out whether you need volume or area and

why ?

- i) Quantity of water inside a bottle.
- ii) Canvas needed for making a tent.
- iii) Gas filled in a cylinder.



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14. Consider the following situations. In each situation, find out whether you need to find volume or surface area and why?: Number of match sticks that can be put in the matchbox.



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15. Think of 5 more objects around you that can be seen as a combination of shapes. Name the shapes that combined to make them.



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16. A joker's cap is in the form of right circular cone whose base radius is 7 cm and height is 24 cm. Find the area of the sheet required to make 10 such caps.



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17. A sports company was ordered to prepare 100 paper cylinders without caps for shuttle cocks. The required dimensions of the cylinder are 35 cm length / height and its radius is 7 cm. Find the required area of the thin paper sheet needed to make 100 cylinders.



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18. Find the volume of right circular cone with radius 6 cm. and height 7 cm.



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19. The lateral surface area of a cylinder is equal to the curved surface area of a cone. If their base be the same, find the ratio of the height of the cylinder to slant height of the cone.



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20. A self help group wants to manufacture joker's caps (conical caps) of 3 cm radius and 4 cm height. If the available colour paper sheet is 1000 cm^2 , then how many caps can be manufactured from that paper sheet ?



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21. A cylinder and cone have bases of equal radii and are of equal heights. Show that their volumes are in the ratio of 3 : 1



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22. A solid iron has cylindrical shape. Its height is 11 cm. and base diameter is 7 cm. Then find the total volume of 50 rods ?



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23. A heap of rice is in the form of a cone of diameter 12 m. and height 8 m. Find its volume ? How much canvas cloth is required to cover

the heap ?

(Use $\pi = 3.14$)



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24. The curved surface area of a cone is 4070 cm^2 and its diameter is 70 cm . What is its slant height ?



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25. Mention two situations where do you use hydrated and unhydrated salts in your daily life.



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26. A sphere is inscribed in a cylinder. Is the surface of the sphere equal to the curved surface of the cylinder? If yes, explain how.



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27. A right triangle, whose base and height are 15 cm and 20 cm. respectively is made to revolve about its hypotenuse. Find the volume and surface area of the double cone so formed.
(use $\pi = 3.14$)



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28. A wooden toy rocket is in the shape of a cone mounted on a cylinder as shown in the adjacent figure. The height of the entire rocket is 26 cm, while the height of the conical part is

6 cm. The base of the conical position has a diameter of 5 cm, while the base diameter of the cylindrical portion is 3 cm. If the conical portion is to be painted orange and the cylindrical portion is to be painted yellow, find the area of the rocket painted with each of these colour.

(Take $\pi = 3.14$)



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29. A toy is in the form of a cone mounted on a hemisphere. The diameter of the base and the height of the cone are 6 cm and 4 cm respectively. Determine the surface area of the toy.

[Use $\pi = 3.14$]



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30. A solid is in the form of a right circular cylinder with a hemisphere at one end and a

cone at the other end. The radius of the common base is 8 cm and the heights of the cylindrical and conical portions are 10 cm and 6 cm respectively. Find the total surface area of the solid. [Use $\pi = 3.14$]



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



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32. Two cubes each of volume 64 cm^3 are joined end to end together. Find the surface area of the resulting cuboid.



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33. A storage tank consists of a circular cylinder with a hemisphere stuck on either end. If the external diameter of the cylinder be 1.4 m. and its length be 8 m. Find the cost of

painting it on the outside at rate of Rs. 20 per m^2 .



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34. A sphere, a cylinder and a cone have the same radius and same height. Find the ratio of their volumes.

[Hint : Diameter of the sphere is equal to the heights of the cylinder and the cone.]



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35. A hemisphere is cut out from one face of a cubical wooden block such that the diameter of the hemisphere is equal to the edge of the cube. Determine the surface area of the remaining solid.



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36. A wooden article was made by scooping out a hemisphere from each end of a solid cylinder, as shown in the figure. If the height of

the cylinder is 10 cm and its base radius is 3.5 cm, find the total surface area of the article.



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37. If the diameter of the cross - section of a wire is decreased by 5%, by what percentage should the length be increased so that the volume remains the same ?



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38. Surface area of a sphere and cube are equal. Then find the ratio of their volumes.



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39. A solid toy is in the form of a right circular cylinder with hemispherical shape at one end and a cone at the other end. Their common diameter is 4.2 cm and the height of the cylindrical and conical portions are 12 cm and 7 cm respectively. Find the volume of the solid

toy.

$$\left[\text{Use } \pi = \frac{22}{7} \right]$$



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40. A cylindrical container is filled with ice-cream whose diameter is 12 cm and height is 15 cm. The whole ice-cream is distributed to 10 children in equal cones having hemispherical tops. If the height of the conical portion is twice the diameter of its base, find the diameter of the ice-cream cone.



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41. A solid consisting of a right circular cone standing on a hemisphere, is placed up-right in a right circular cylinder full of water and touches the bottom. Find the water and touches the bottom. Find the volume of water left in the cylinder, given that the radius of the cylinder is 3 cm. and its height is 6 cm. The radius of the hemisphere is 2 cm. and the height of the cone is 4 cm. $\left[\text{Take } \pi = \frac{22}{7} \right]$



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42. A cylindrical pencil is sharpened to produce a perfect cone at one end with no over all loss of its length. The diameter of the pencil is 1 cm and the length of the conical portion is 2 cm. Calculate the volume of the shavings. Give your answer correct to two places if it is in decimal. $\left[\text{Use } \pi = \frac{355}{113} \right]$



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43. An iron pillar consists of a cylindrical portion of 2.8 m. height and 20 cm. in diameter and a cone of 42 cm. height surmounting it. Find the weight of the pillar if 1 cm^3 of iron weighs 7.5 g.



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44. A toy is made in the form of hemisphere surmounted by a right cone whose circular base is joined with the plane surface of the

hemisphere. The radius of the base of the cone is 7 cm. and its volume is $\frac{3}{2}$ of the hemisphere. Calculate the height of the cone and the surface area of the toy correct to 2 places of decimal.

$$\left(\text{Take } \pi = 3\frac{1}{7} \right)$$



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45. Find the volume of the largest right circular cone that can be cut out a cube whose edge is 7 cm.



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46. A cylindrical tub of radius 5 cm and length 9.8 cm is full of water. A solid in the form of right circular cone mounted on a hemisphere is immersed into the tub. The radius of the hemisphere is 3.5 cm and height of cone outside the hemisphere is 5 cm. Find the volume of water left in the tub.

$$\left(\text{Take } \pi = \frac{22}{7} \right)$$



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47. In the adjacent figure, the height of a solid cylinder is 10 cm and diameter is 7 cm. Two equal conical holes of radius 3 cm and height 4 cm are cut off as shown in the figure. Find the volume of the remaining solid.



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48. Spherical marbles of diameter 1.4 cm. are dropped into a cylindrical beaker of diameter 7 cm., which contains some water. Find the

number of marbles that should be dropped into the beaker, so that water level rises by 5.6 cm.



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49. A pen stand is made of wood in the shape of cuboid with three conical depressions to hold the pens. The dimensions of the cuboid are 15 cm by 10 cm by 3.5 cm. The radius of each of the depression is 0.5 cm and the depth

is 1.4 cm. Find the volume of wood in the entire stand.



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50. Which barrel shown in the below figure can hold more water? Discuss with your friends.



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51. A copper rod of diameter 1 cm. and length 8 cm. is drawn into a wire of length 18 m of

uniform thickness. Find the thickness of the wire.



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52. Parvali house has a water tank in the shape of a cylinder on the roof. This is filled by pumping water from a sump (an underground tank) which is in the shape of a cuboid. The sump has dimensions $1.57 \text{ m} \times 1.44 \text{ m} \times 9.5 \text{ cm}$. The water tank has radius 60 cm . and height 95 cm . Find the height of the water left

in the sump after the water tank has been completely filled with water from the sump which had been full of water. Compare the capacity of the tank with that of the sump. ($\pi = 3.14$)



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53. A cone of height 24 cm and radius of base 6 cm is made up of modelling clay. A child reshapes it in the form of a sphere. Find the radius of the sphere.



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54. The diameter of the internal and external surfaces of a hollow hemispherical shell are 6 cm. and 10 cm. respectively. It is melted and recast into a solid cylinder of diameter 14 cm. Find the height of the cylinder.



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55. A hemispherical bowl of internal radius is 15 cm. contains a liquid. The liquid is to be

filled into cylindrical bottles of diameter 5 cm. and height 6 cm. How many bottles are necessary to empty the bowl ?



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56. The diameter of a metallic sphere is 6 cm. It is melted and drawn into a long wire having a circular cross section of diameter as 2 cm. Find the length of the wire.



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57. How many spherical balls can be made out of a solid cube of lead whose edge measures 44 cm and each ball being 4 cm. in diameter ?



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58. A women self help group (DWARCA) is supplied a rectangular solid (cuboid shape) of wax with diameters 66 cm., 42 cm., 21., to prepare cylindrical candles each 4.2 cm. in diameter and 2.8 cm. of height. Find the number of candles.



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59. 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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60. Three metallic spheres of radii 6 cm., 8 cm. and 10 cm. respectively are melted together to

form a single solid sphere. Find the radius of the resulting sphere.



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61. A 20 m deep well with diameter 7 m. is dug and the earth got by digging is evenly spread out to form a rectangular platform of base 22m. \times 14m. Find the height of the platform.



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62. A well of diameter 14m. is dug 15m. deep. The earth taken out of it has been spread evenly all around it in the shape of a circular ring of width 7 m to form an embankment. Find the height of the embankment.



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63. A container shaped like a right circular cylinder having diameter 12 cm. and height 15 cm. is full of ice-cream. The ice-cream is to be

filled into cones of height 12 cm. and diameter 6 cm., having a hemispherical shape on the top. Find the number of such cones which can be filled with ice-cream.



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64. How many silver coins, 1.75 cm in diameter and thickness 2mm., need to be melted to form a cuboid of dimensions 5.5 cm \times 10 cm \times 3.5 cm ?



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65. A vessel is in the form of an inverted cone. Its height is 8 cm. and the radius of its top is 5 cm. It is filled with water up to the rim. When lead shots, each of which is a sphere of radius 0.5 cm are dropped into the vessel, $\frac{1}{4}$ of the water flows out. Find the number of lead shots dropped into the vessel.



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66. A solid metallic sphere of diameter 28 cm is melted and recast into a number of smaller cones, each of diameter $4\frac{2}{3}$ and height 3 cm. Find the number of cones so formed.



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67. A golf ball has diameter equal to 4.1 cm. Its surface has 150 dimples each of radius 2mm. Calculate total surface which is exposed to the

surroundings. (Assume that the dimples are all hemispherical) $[\pi = 22/7]$



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68. A cylinder of radius 12 cm. contains water to a depth of 20 cm. A spherical iron ball is dropped into the cylinder and thus the level of water is raised by 6.75 cm. Find the radius of the ball.

$$\left[\pi = \frac{22}{7} \right]$$



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69. A solid toy is in the form of a right circular cylinder with hemispherical shape at one end and a cone at the other end. Their common diameter is 4.2 cm and the height of the cylindrical and conical portions are 12 cm and 7 cm respectively. Find the volume of the solid toy.

$$\left[\text{Use } \pi = \frac{22}{7} \right]$$



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70. Three metal cubes with edges 15 cm., 12 cm. and 9 cm. respectively are melted together and formed into a simple cube. Find the diagonal of this cube.



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71. A hemispherical bowl of internal diameter 36 cm. contains a liquid. This liquid is to be filled in cylindrical bottles of radius 3 cm. and height 6 cm. How many bottles are required to empty the bowl ?



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72. A company wants to manufacture 500 hemispherical basins from a thin steel sheet. If the radius of basin is 14 cm., find the area of steel sheet to manufacture the above hemispherical basins.



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73. A toy is in the form of right circular cone whose base radius 5 cm and height is 12 cm.

Find the area of sheet required to make 10 such toys.



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74. The shape of solid iron rod is a cylindrical. Its height is 20 cm and base diameter is 14 cm. Then find the total volume of 60 such roads.



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75. A heap of rice is in the form of a cone of diameter 12 m. and height 8 m. Find its volume ? How much canvas cloth is required to cover the heap ?

(Use $\pi = 3.14$)



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76. The curved surface area of a cone is 5170cm^2 and its diameter is 84 cm. What is its slant height?





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77. A cone of height 32 cm and radius 8 cm is made up of modelling clay. A child reshapes it in the form of a sphere. Find the radius of the sphere.



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78. A metallic sphere of radius 4.9 cm is melted and recast into the shape of a cylinder of radius 7 cm. Find the height of cylinder.



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79. The rain water from a roof of $33m \times 30m$ drains into a cylindrical vessel having diameter of base 4 m. and height 4.2 m. If the vessel is just full, find the rainfall in cm.



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80. The radii of the internal and external surfaces of a hollow spherical shell are 2 cm

and 4 cm respectively. If it is melted and recast in to a solid cylinder of radius $2\sqrt{2}cm$. Find the height of the cylinder.



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81. A cylindrical bucket, 36 cm high and with radius of base 16 cm is filled with rice. This bucket is emptied out on the ground and a conical heap of rice is formed. If the height of the conical heap is 27 cm. find the radius and slant height of the heap.



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82. Find the total surface area of a hemisphere of radius 2.8 cm.



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83. A cone of height 16 cm and radius of base 4 cm is made up modeling clay. A child reshapes it into a sphere. Find the radius of the sphere.



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84. A storage tank consists of a circular cylinder with a hemisphere stuck on either end. If the external diameter of the cylinder be 1.4 m. and its length be 8 m. Find the cost of painting it on the outside at rate of Rs. 20 per m^2 .



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85. How many spherical balls can be made out of a solid cube of lead whose edge measures

44 cm and each ball being 4 cm. in diameter ?



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86. Explain the terms in the formula

$$V = l \times b \times h$$



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87. Self help group wants to manufacture joker's caps (conical caps) of 6 cm radius and 8 cm height. If the available colour paper sheet

is 1000cm^2 then how many caps can be manufactured from that paper.



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88. A cone of height 24 cm and radius of base 6 cm is made up of modelling clay. A child reshapes it in the form of a sphere. Find the radius of the sphere.



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89. A rectangular park is to be designed whose breadth is 3 m less than its length. Its area is to be 4 square metres more than area of a park that has already been made in the shape of an isosceles triangle with its base as the breadth of the rectangular park and of altitude 12m. Find its length and breadth.



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90. To calculate the quantity of milk inside a bottle, we need to find out.....



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91. The height of right angle triangle is 7 cm less than the base, the length of the diagonal is 17 cm, then the length of remaining two sides are.....



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92. Find the volume and total surface area of a hemisphere whose radius is 35 cm?



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93. The radius of a conical tent is 5m and its height is 12m. Calculate the length of the canvas used in making the tent if width of canvas is 2m.



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94. If a cylinder and cone are of the same radius and height, then how many cones full of milk can fill the cylinder ? Answer with reasons.



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95. A medicine capsule is in the shape of a cylinder with two hemispheres stuck to each of its ends. If the length of cylinder part is 14mm and the diameter of hemisphere is 6 mm. then find the volume of medicine capsule.



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96. State the relation between r and l (slant height) of a cone.



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97. The radius of a spherical balloon increases from 7 cm to 14 cm as air is pumped into it. Find the ratio of volumes of balloon before and after pumping the air.



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98. A conical solid block is exactly fitted inside the cubical box of side 'a' then the volume of conical solid block is $\frac{4}{3}\pi a^3$. If this statement true. Justify.



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99. If the surface area of a hemisphere is 'S' then express 'r' in terms of 'S'.



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100. Find the volume and surface area of a sphere of radius 42 cm.



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101. A solid metallic ball of volume 64 cm^3 is melted and made into a solid cube. Find the side of solid cube.



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102. DWARCA is supplied cuboidal shaped wax block with measurements $88 \text{ cm} \times 42 \text{ cm} \times 35 \text{ cm}$. From this how many number of cylindrical candles of 2.8 cm diameter and 8 cm of height can be prepared ?



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103. Find the volume of the largest right circular cone that can be cut out of a cube whose edge is 11 cm .



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104. Find the volume of the largest right circular cone that can be cut out of a cube whose edge 5 cm.



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105. A sports company was ordered to prepare 100 paper cylinders without caps for shuttle cocks. The required dimensions of the cylinder are 35 cm length / height and its radius is 7

cm. Find the required area of the thin paper sheet needed to make 100 cylinders.



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106. A sports company was ordered to prepare 100 paper cylinders without caps for shuttle cocks. The required dimensions of the cylinder are 35 cm length / height and its radius is 7 cm. Find the required area of the thin paper sheet needed to make 100 cylinders.



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107. The curved surface area of a cone is 3060cm^2 and its diameter is 50 cm. What is its slant height.



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108. The curved surface area of a cone is 3570cm^2 and its diameter is 40 cm. What is its slant height.



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109. A hemi-spherical bowl of internal radius 10 cm. Contains a liquid the liquid is to be filled into cylindrical bottles of diameter 3 cm and height 4 cm. How many Bottles are necessary to empty the bowl.



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110. A hemi-spherical bowl of internal radius 18 cm. Contains a liquid the liquid is to be filled into cylindrical bottles of diameter 5 cm and

height 6 cm. How many Bottles are necessary to empty the bowl.



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111. The shape of solid iron rod is a cylindrical. Its height is 14 cm and base diameter is 9 cm then find the total Volume of 60 such rods.



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112. The shape of solid iron rod is a cylindrical. Its height is 18 cm and base diameter is 12 cm then find the total Volume of 75 rods.



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113. Find the volume of sphere of radius 6.3 cm



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114. Find the volume of right circular cone with radius 3 cm. and height 14 cm.



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115. The volume of cone , whose radius is 3 cm and height is 8cm, is cm^3 .



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116. A rectangular sheet of paper $44\text{cm} \times 18\text{cm}$ is rolled along the length to form a cylinder. Assuming that the cylinder is solid (Completely filled), find its radius and the total surface area.



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117. The area of a sector of a circle of radius 7 cm and central angle 45° is



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118. A right circular cylinder has radius 3.5 cm and height 14 cm. Find curved surface area.



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119. Base circumference of a cylinder is 220 cm and height is 63 cm then

CSA= cm^2 .



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120. In a cone, $d = 14$ cm, $l = 10$ cm then

CSA = cm^2 .



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121. In a cube, $a = 4$ cm then

TSA = cm^2 .



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122. The perimeter of an equilateral triangle is

60 cm then its area is cm^2 .



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123. Volume of hemisphere is 19404 cm^3 then its TSA = cm^2 .



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124. If the diagonal of a cube is 2.5 m then volume is m^3 .



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125. $r^3 = 1728$ then $r = \dots\dots\dots$



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126. In a hemisphere, $r = 1.75$ cm then CSA =
 $\dots\dots\dots \text{cm}^2$.



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127. In a cone, $r=7$ cm, $h=10$ cm then $l= \dots\dots\dots$ cm.



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128. The volume of a cube is 216 cm^3 then edge is cm.



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129. A hemisphere is cut out from one face of a cubical wooden block such that the diameter of the hemisphere is equal to the edge of the cube. Determine the surface area of the remaining solid.



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130. 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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131. The volume of a hemi-sphere is $2425\frac{1}{2} \text{ cm}^3$. Find its curved surface area.

$$\left(\text{use } \pi = \frac{22}{7} \right)$$



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132. The surface areas of two spheres are in the ratio 1:4 then, ratio of their volumes is



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133. A metallic sphere of radius 5.4 cm is melted and recast into the shape of a cylinder of radius 9 cm. Find the height of the cylinder.



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134. All oil drum is in the shape of a cylinder with two hemi-spheres stuck to each of its ends. The length of the drum is 5 m and the width is 1 m. Find its surface area.



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135. The volume of the greatest cylinder that can be cut from a solid wooden cube of length of edge 14 cm is



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136. A 10 m deep well of diameter 3.5m is dug and the earth got by digging is evenly spread out to form a platform 20 m of base 12m. Find the height of the platform.



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137. A solid metallic sphere of diameter 14 cm is melted and recast into a number of smaller cones, each of radius $2\frac{1}{3}cm$ and height 2 cm. Find the number of cones so formed.



138. A solid iron cuboid of dimensions $49 \times 33 \times 24\text{cm}$ is melted to form a solid sphere then its radius is

A. 24 cm

B. 21 cm

C. 18 cm

D. 13 cm

Answer:



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

A. 2 cm

B. 8 cm

C. 6 cm

D. 4 cm

Answer:



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140. The volume and surface area of a sphere are numerically equal. Then the volume of the smallest cylinder in which the sphere is exactly kept

A. 54π

B. 27π

C. 36π

D. 9π

Answer:



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141. Ratio of volumes of a cone, a cylinder and a hemisphere of same base, radius and equal heights is

A. 1 : 3 : 2

B. 2 : 1 : 7

C. 1 : 2 : 3

D. none

Answer:



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142. Volume of hemi-sphere iscu.units.

A. $\frac{1}{7}\pi r^2 h$

B. $\frac{1}{3}\pi r^2 h$

C. $\frac{2}{3}\pi r^3$

D. none

Answer:



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143. Total surface area of cube issq. units.

A. $6l^2$

B. $4l^2$

C. $3l^2$

D. $9l^2$

Answer:



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144. CSA of cylinder is sq. units.

A. $2\pi rh$

B. πrh

C. $\frac{\pi r}{h}$

D. none

Answer:



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145. Laddu is an example of

A. circle

B. cone

C. sphere

D. none

Answer:



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146. The volume of a hemisphere of radius 3.5 cm is cm^3 .

A. 70.73

B. 189.83

C. 98.14

D. 89.83

Answer:



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147. Diagonal of a cube is units.

A. $3\sqrt{a}$

B. $\sqrt{3}a^2$

C. $\frac{\sqrt{3}}{a}$

D. $a\sqrt{3}$

Answer:



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148. In a cylinder, $h = 14$ cm, $V = 176$ cm^3 , $r =$
..... cm.

A. 1

B. 10

C. 6

D. 2

Answer:



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149. Volume of cone with d as diameter and h as height is $units^3$.

A. $\frac{\pi d^2}{6}$

B. $\frac{\pi d^2 h}{12}$

C. $\frac{\pi d h^2}{12}$

D. none

Answer:



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150. TSA of cylinder is 1188cm^2 , $h = 20$ cm then its volume is cm.

A. 1080

B. 3080

C. 1459

D. 4158

Answer:



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151. Volume of hemisphere is 19404 cm^3 then
its TSA = cm^2 .

A. 4118

B. 3158

C. 1459

D. 4158

Answer:



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152. Football is an example of

A. circle

B. sphere

C. cone

D. none

Answer:



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153. The vertical cross section of a cylinder is.....

A. circle

B. isoscles triangle

C. Right angl d triangle

D. Rectangle

Answer:



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Exercise

1. A toy is in the form of a cone mounted on a hemisphere. The radius of the base and the height of the cone are 7 cm and 8 cm respectively. Find the surface area of the toy.

$$(\pi = 22/7)$$



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2. A cubical block of side 7 cm is surmounted by a hemi-sphere. What is the greatest

diameter the hemi-sphere can have? Find the surface area of the solid.



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3. A cone of height 24 cm and radius of base 6 cm is made up of modelling clay. A child reshapes it in the form of a sphere. Find the radius of the sphere.



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4. 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.

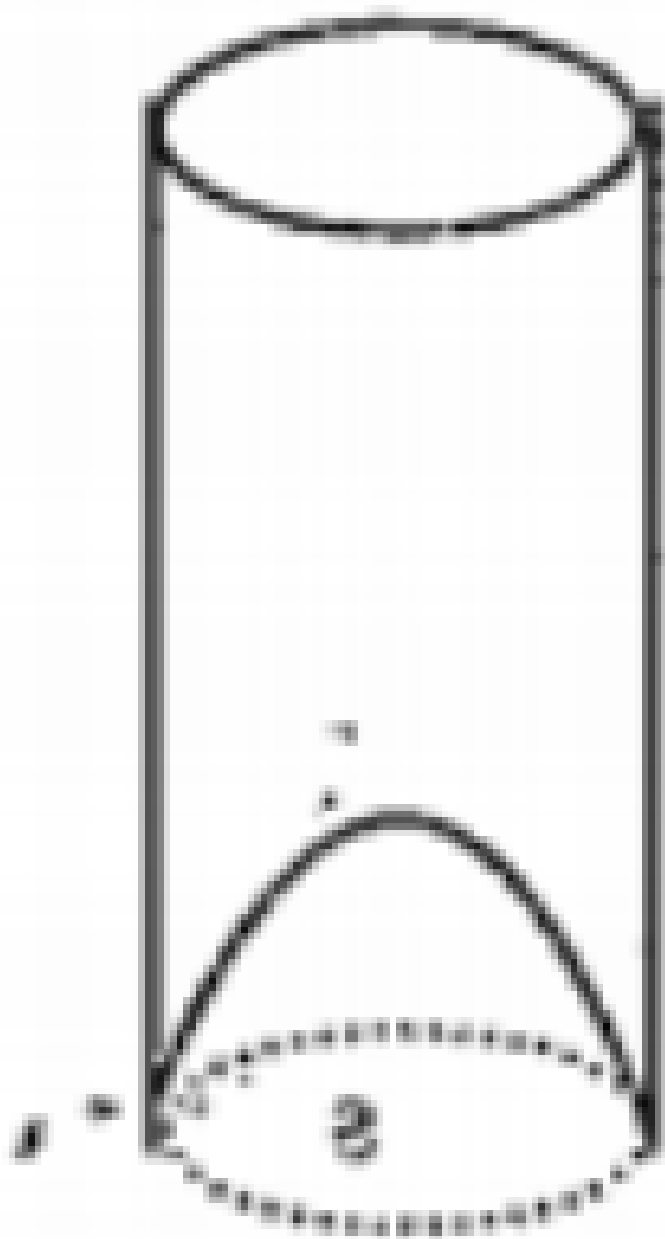


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5. A juice seller was serving his customers using glasses as shown in the adjacent figure. The inner diameter of the cylindrical glass was 5 cm, but the bottom of the glass had a hemi-spherical raised portion which reduced

the capacity of the glass. If the height of the glass was 10 cm, find the apparent capacity of the glass and its actual capacity.

(use $\pi = 3.14$)





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6. The volume of a hemi-sphere is $2425\frac{1}{2}cm^3$.

Find its curved surface area.

$$\left(use \pi = \frac{22}{7} \right)$$



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7. A cylindrical bucket, 32cm high and with radius of base 18 cm, is filled with sand. This bucket is emptied out on the ground and a

conical heap of sand is formed. If the height of the conical heap is 24 cm, find the radius and slant height of the heap.



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8. The diameter of the internal and external surfaces of a hollow hemispherical shell are 6 cm. and 10 cm. respectively. It is melted and recast into a solid cylinder of diameter 14 cm. Find the height of the cylinder.



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9. 2.2 cubic Dm of brass is to be drawn into a cylindrical wire 0.25 cm in diameter. Find the length of the wire.



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10. The rain water from a roof of $22m \times 20m$ drains into a cylindrical vessel having diameter of base 2 m. and height 3.5 m. If the vessel is just full, find the rainfall in cm.



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11. A right circular cone is 3.6 cm high and radius of its base is 1.6 cm. It is melted and recast into a right circular cone with radius of its base as 1.2 cm. Find its height.



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12. How many spherical lead shots each 4.2 cm in diameter can be obtained from a rectangular solid of lead with dimensions 66

cm, 42 cm, 21 cm.

$$\left(use \pi = \frac{22}{7} \right)$$



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13. 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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14. A circus tent is cylindrical upto a height of 3 m and conical above it. If the diameter of the base is 105 m and the slant height of the conical part is 53 m, find the total canvas used in making the tent.



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15. A wooden article was made by scooping out a hemisphere from each end of a solid cylinder, as shown in the figure. If the height of

the cylinder is 10 cm and its base radius is 3.5 cm, find the total surface area of the article.



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16. A tent is in the shape of a cylinder surmounted by a conical top. If the height and diameter of the cylindrical part are 2.1 m and 4 m, and slant height of the top is 2.8 m, find the area of the canvas used for making the tent. Also, the cost of canvas of the tent at the rate

of $Rs. 500\text{perm}^2$.



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17. A solid is composed of a cylinder with hemispherical ends. If the whole length of the solid is 104 cm and the radius of each of the hemispherical ends is 7 cm, find the cost of polishing its surface at the rate of $Rs. 10\text{percm}^2$



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18. A cylindrical vessel with internal diameter 10 cm and height 10.5 cm is full of water. A solid cone of base diameter 7 cm and height 6 cm is completely immersed in water. Find the volume of water displaced out the cylinder
Left in the cylinder.



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19. A cylinder road roller made of iron is 1 metre long. Its internal diameter is 54 cm and the thickness of the iron sheet used in making the roller is 9 cm. Find the mass of the roller, if 1cm^3 of iron has 7.8 gm mass.

(use $\pi = 3.14$)

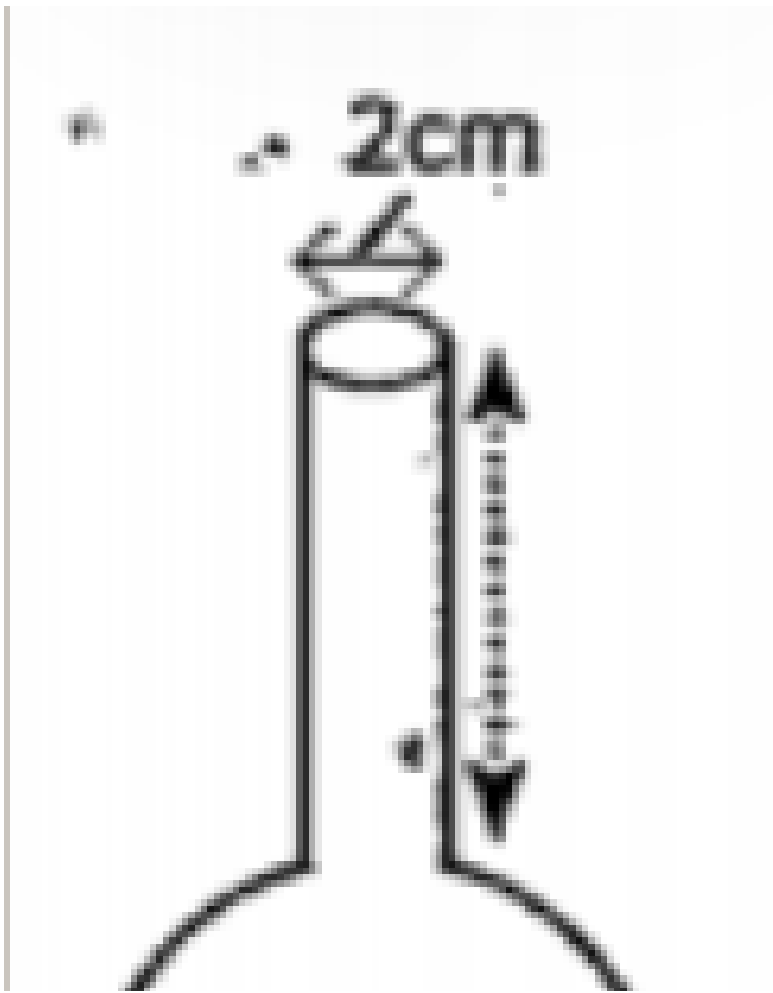


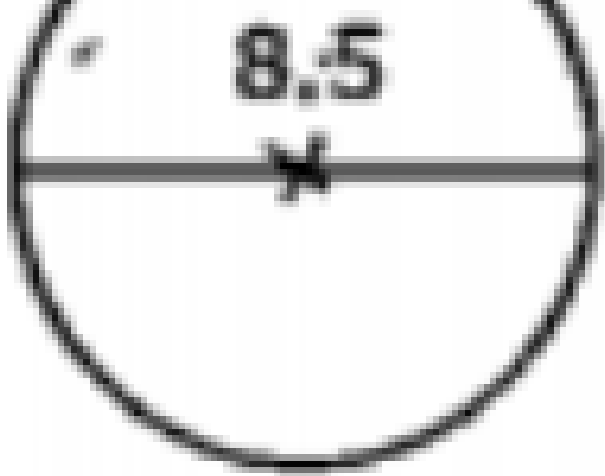
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20. A spherical glass vessel has a cylindrical neck 8 cm long, 2 cm in diameter. The diameter

of the spherical part is 8.5 cm. By measuring the amount of water it holds, a child find its volume to be 345cm^3 .

Check whether she is correct, taking the above as inside measurements and $\pi = 3.14$





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21. To find out quantity of water in the bottle,
we measure.....

A. surface area

B. total surface area

C. volume

D. base area

Answer:



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22. Lateral surface area of a cube is given by

A. $2a^2$

B. $4a^2$

C. $6a^2$

D. a^3

Answer:



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23. the curved surface area of a right circular cylinder is sq. units.

A. $2\pi r h$

B. $\pi r l$

C. $2\pi r(\pi + r)$

D. $2\pi r(r + h)$

Answer:



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24. The ratio of volume of a cone and cylinder of equal diameter and height is

A. 3 : 1

B. 1 : 3

C. 1:2

D. 1:1

Answer:



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25. Diagonal of a cube is units.

A. a

B. $\sqrt{2}a$

C. $\sqrt{3}a$

D. 2a

Answer:



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26. The volume of a sphere of radius 'r' is obtained by multiplying its surface area by

A. $\frac{4}{3}$

B. $\frac{r}{3}$

C. $4\frac{r}{3}$

D. $3r$

Answer:



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27. Total surface area of a solid hemisphere of radius 7 cm. is cm^2 .

A. $239\pi cm^2$

B. $449\pi cm^2$

C. $221\pi cm^2$

D. $129\pi cm^2$

Answer:



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28. The curved surface area of a right circular cone of height 15 cm and base diameter 16 cm is

A. $144\pi cm^2$

B. $136\pi cm^2$

C. $105\pi cm^2$

D. $120\pi cm^2$

Answer:



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29. The surface areas of two spheres are in the ratio 1:4 then, ratio of their volumes is

A. 1 : 4

B. 2 : 8

C. 1: 16

D. 1: 64

Answer:



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30. The volume of the largest right circular cone that can be cut out from a cube of edge 4.2 cm is

A. 19.4cm^3

B. $74:6\text{cm}^3$

C. 9.7cm^3

D. 8.4cm^3

Answer:



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31. The ratio of volume of a cone and cylinder of equal diameter and height is

A. $3:1$

B. 1 : 2

C. 2 : 1

D. 1 : 3

Answer:



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32. An iron cylindrical rod has a height 4 times its radius is melted and cast into spherical balls of the same radius. The number of balls cast is

A. 4

B. 3

C. 2

D. 1

Answer:



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33. A cone and a hemisphere have equal bases and equal volumes then the ratio of their heights is

A. 2: 1

B. 3: 1

C. 4: 1

D. 1: 1

Answer:



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34. The volume of the greatest cylinder that can be cut from a solid wooden cube of length of edge 14 cm is

A. 2156cm^3

B. 1078cm^3

C. 539cm^3

D. 428cm^3

Answer:



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35. A shuttle cock is a combination of

A. cylinder, sphere

B. sphere, cone

C. cylinder, hemisphere

D. hemisphere, first term cone

Answer:



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36. T.S.A of a solid hemisphere whose radius is

22 cm is cm^2 .

A. 327π

B. 144π

C. 147π

D. 189π

Answer:



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37. If the radius of base of a cylinder is doubled and the height remains unchanged, its C.S.A becomes

A. doble

B. times

C. half

D. no change

Answer:



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38. The number of cubes of side 2 cm which can be cut from a cube of side 6 cm is

A. 3

B. 18

C. 27

D. 9

Answer:



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39. If the diameter of a sphere is 'd' then its volume is

A. $\frac{1}{6}\pi d^3$

B. $\frac{4}{3}\pi d^3$

C. $\frac{1}{24}\pi d^3$

D. $\frac{1}{3}\pi d^3$

Answer:



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40. A cylinder, a cone and a hemisphere are of equal base and have the same height, then the ratio of their volumes is

A. 3: 1: 1

B. 3: 2: 1

C. 1: 2: 3

D. 1: 3: 2

Answer:



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41. Total surface area of a cube is 216cm^2 then its volume is cm^3 .

A. 216

B. 196

C. 212

D. 144

Answer:



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42. The total surface area of a cube is 54 cm^2

then its side is cm.

A. 6

B. 9

C. 12

D. 3

Answer:



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43. Base area of a regular cylinder is 154 cm^2

then its radius is

A. 49 cm

B. 7 cm

C. 22 cm

D. 14 cm

Answer:



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44. If the height and radius of a cone are 1.5 and 8 cm then its slant height = cm.

A. 2.5 cm

B. 7.5 cm

C. 5 cm

D. 10 cm

Answer:



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45. Curved surface area of a hemisphere =

.....

A. πr^2

B. $\frac{1}{3}\pi r^2$

C. $3\pi r^2$

D. $2\pi r^2$

Answer:



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46. Volume of a cube having 1 cm side is

A. 1cm^3

B. 3cm^3

C. 1 cm^2

D. 3cm^2

Answer:



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47. Ratio of volumes of two spheres is 8:27

then ratio of their curved surface areas is

A. 2:3

B. 4: 27

C. 8: 9

D. 4: 9

Answer:



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48. Football is an example of

A. circle

B. cylinder

C. sphere

D. cone

Answer:



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49. Radius of a cone is ' r ', height is ' h ' and its slant height is ' l ' then which of the following is false ?

A. always $l > h$

B. always $l > r$

C. always $r > p$

D. $l^2 = r^2 + h^2$

Answer:



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50. Radius, height, slant height of a cone are r , h , l , then ' l ' value in terms of r and h is

A. $\sqrt{h^2 - r^2}$

B. $\sqrt{r^2 + h^2}$

C. $\sqrt{r^2 - h^2}$

D. $\sqrt{4r^2 + h^2}$

Answer:



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51. To calculate the quantity of milk inside a bottle we need to find out

A. Area

B. Volume

C. Density

D. TSA

Answer:



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52. A sphere, a cylinder and a cone have the same radius and same height then the ratio of their curved surface areas is

A. $4:4:\sqrt{5}$

B. $1:1:\sqrt{5}$

C. $\sqrt{5}:4:4$

D. $4:\sqrt{5}:4$

Answer:



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53. Diagonals of a cuboid is units.

A. $\sqrt{l^2 + b^2 + h^2}$

B. $l\sqrt{b^2 + h^2}$

C. $b\sqrt{h^2 + r^2}$

D. none

Answer:



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54. The radius of a conical tent is 3 meter and height is 4 meter then its slant height is.....meter.

A. 5

B. $\sqrt{25}$

C. A and B

D. none

Answer:



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55. Total surface area of a solid hemisphere of radius 7 cm. is cm^2 .

A. $3\pi r^2$

B. $2\pi r^2$

C. 3π

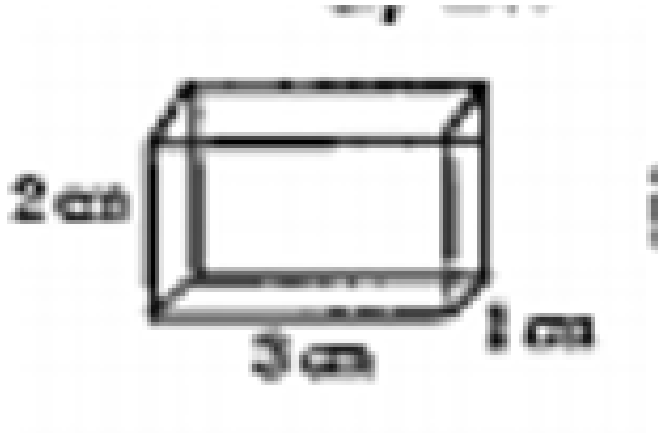
D. 2π

Answer:



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56. Volume of



is cuboid

A. 16

B. 10

C. 6

D. 12

Answer:



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57. The diameter of a metallic sphere is 6 cm and melted to draw a wire of diameter 0.2 cm, then the length of the wire is

A. 48 cm

B. 12 cm

C. 36 cm

D. 24 cm

Answer:



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58. A solid sphere of radius r melted and recast into the shape of a solid cone of height r , then radius of the base of the cone is (of equal volume)

A. $2r$

B. r

C. $3r$

D. $4r$

Answer:



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59. If the radii of circular ends of a frustum of a cone are 20 cm and 12 cm and its height is 6 cm, then the slant height of the frustum is cm.

A. 10

B. 6

C. 9

D. 8

Answer:



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60. The number of balls, each of radius 1 cm that can be made from a solid sphere of radius 8 cm is

A. 64

B. 216

C. 16

D. 512

Answer:



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61. The ratio of volume of two cones is 4:5 and the ratio of the radii of their base is 2:3 then ratio of their vertical heights is

A. 4:5

B. 9:5

C. 3:5

D. 2:5

Answer:



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62. If the ratio of radii of two spheres is 2:3 then the ratio of their surface areas is

A. 3:2

B. 27:8

C. 8:27

D. 4:9

Answer:



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63. If a cone is cut into two parts by a horizontal plane passing through the mid

point of the axis, the ratio of the volumes of the upper part and the cone is

A. 1 : 2

B. 1 : 4

C. 1 : 6

D. 1 : 8

Answer:



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64. The height of a cylinder is doubled and radius is tripled then its curved surface area will become times.

A. 7

B. 6

C. 9

D. 12

Answer:



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65. Diameter of a sphere which can inscribe a cube of edge x cm is

A. $x / 3$

B. $\frac{x^2}{3}$

C. $\frac{x}{\sqrt{3}}$

D. $x\sqrt{3}$

Answer:



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66. Total surface area of hemisphere of radius r is

A. πr^2

B. $2\pi r^2$

C. $3\pi r^2$

D. none

Answer:



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67. Volume of a frustrum of a cone is

A. $\frac{\pi h}{3} (R^2 + r^2 + R \cdot r)$

B. $\frac{h}{3} (R^2 + r^2)$

C. $\frac{\pi h}{3} (R^2 + r^2)$

D. none

Answer:



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68. If the length of each diagonal of a cube is doubled, then its volume become times.

A. 7

B. 8

C. 9

D. none

Answer:



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69. If a right angled triangle is revolved about its hypotenuse then it will form a

A. double cone

B. triple cone

C. only cone

D. none

Answer:



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70. A solid sphere of radius 10 cm is moulded into 8 spherical solid balls of equal radius, then radius of small spherical balls is cm.

A. 10

B. 9

C. 6

D. 5

Answer:



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71. In a hollow cuboid box of size $4 \times 3 \times 2$ m, the number of solid iron spherical balls of radius 0.5 m that can be packed

A. 71

B. 24

C. 22

D. 16

Answer:



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72. If the external and internal radii of a hollow hemispherical bowl are R and r , then its total surface area is

A. $\pi r^2 + R^2$

B. $\pi R^2 + r^2$

C. $\pi R^2 + r$

D. $\pi(3R^2 + r^2)$

Answer:



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73. Volume of cylinder is cu. units.

A. $\pi r^2 h$

B. πr^2

C. $\frac{\pi}{r}$

D. none

Answer:



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74. Volume of cone is cu. units.

A. $\frac{1}{7}\pi r^2 h$

B. $\frac{1}{2}\pi r^3 h$

C. $\pi r^2 h$

D. $\frac{1}{3}\pi r^2 h$

Answer:



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75. Volume of sphere is cu. units.

A. $\frac{4}{3}\pi r^2 h$

B. $\frac{4}{3}\pi r^3$

C. $\frac{1}{3}\pi r^3$

D. none

Answer:



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76. Volume of cuboid = cu. units.

A. l^2b

B. lbh^2

C. lbh

D. none

Answer:



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77. Total surface area of cube issq. units.

A. $\pi r^2 + \pi r l$

B. $\pi r^2 + \pi r$

C. $\pi r^2 + \pi l$

D. none

Answer:



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78. Total surface area of cylinder is sq. units.

A. $\pi r h + \pi r^2$

B. $2\pi r + \pi$

C. $2\pi r^2 h$

D. $2\pi r h + 2\pi r^2$

Answer:



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79. Total surface area of hemisphere is sq. units.

A. $\frac{\pi r^2}{h}$

B. $4\pi r^2$

C. $8\pi r^2 h$

D. none

Answer:



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80. Surface area of a sphere is sq. units.

A. $\frac{\pi r^2}{h}$

B. $4\pi r^2$

C. $8\pi r^2 h$

D. none

Answer:



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81. Volume of a cube is cu. units.

A. $3a^2$

B. a^2h

C. a^3

D. none

Answer:



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82. The volume of a cube is 216 cm^3 then edge is cm.

A. 9

B. 10

C. 16

D. 6

Answer:



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83. Volume of cone is cu. units.

A. $\pi^2 r^2 l^2$

B. $\pi r l^2$

C. πr^2

D. $\pi r l$

Answer:



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84. In a cone, $r=7$ cm, $h=10$ cm then $l= \dots\dots\dots$ cm.

A. 12.2

B. 9.2

C. 10.1

D. none

Answer:



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85. π

A. $\frac{22}{7}$

B. $\frac{2}{7}$

C. $\frac{22}{3}$

D. none

Answer:



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86. The volume of a right circular cone with radius 6 cm and height 14 cm is cm^3 .

A. 462

B. 264

C. 486

D. none

Answer:



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87. A heap of rice is in the form of a cone of diameter 12 m and height 8 m then volume is m^3 .

A. 110.53

B. 301.71

C. 310.51

D. none

Answer:



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88. In a cylinder, $r = 8$ cm, $h = 10$ cm, CSA =
..... cm^3 .

A. $\frac{3520}{7}$

B. $\frac{1520}{9}$

C. $\frac{3310}{41}$

D. none

Answer:



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89. In a hemisphere, $r = 1.75$ cm then CSA =
..... cm^2 .

A. 38.5

B. 48.5

C. 93.5

D. none

Answer:



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90. Volume of cone if $r = 2$ cm, $h = 4$ cm is

.....

A. $\frac{16}{3}\pi$

B. $\frac{6}{7}\pi$

C. $\frac{81}{31}\pi$

D. none

Answer:



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91. Surface area of a sphere and cube are equal. Then find the ratio of their volumes.

A. $\sqrt{\pi} : 1$

B. $\sqrt{\pi} : \sqrt{6}$

C. $\pi : \sqrt{6}$

D. none

Answer:



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92. In a hemisphere, $r = 1.75$ cm then CSA =
..... cm^2 .

A. 210

B. 308

C. 114

D. 112

Answer:



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93. In a cube, $a = 8$ cm then TSA = cm^2 .

A. 1170

B. 1120

C. 2310

D. 1320

Answer:



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94. Heap of stones is an example of

A. cylinder, sphere

B. cone

C. circle

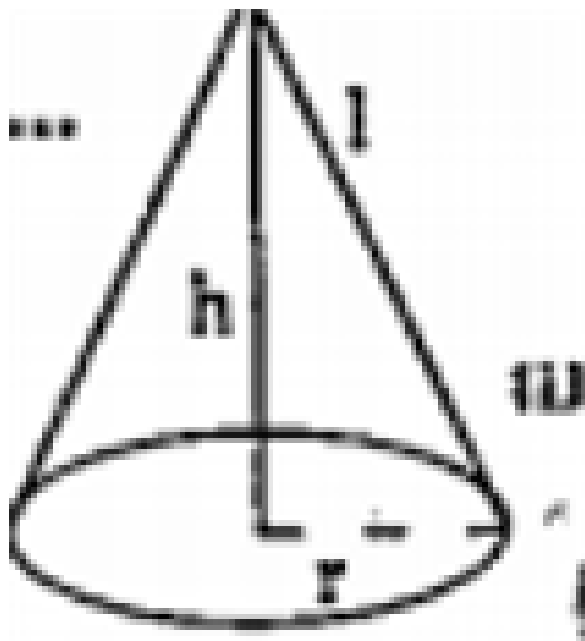
D. none

Answer:



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95. In the figure, $l^2 = \dots\dots\dots$



A. $h^2 + r^2$

B. $\sqrt{l^2 + h^2}$

C. $h^2 + r$

D. $h + r^2$

Answer:



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96. Area of equilateral triangle of side 'a' units is sq. units.

A. $\frac{1}{\sqrt{3}}a^2$

B. $\frac{4}{\sqrt{3}}a^2$

C. $\frac{\sqrt{3}}{4}a$

D. $\frac{\sqrt{3}}{4}a^2$

Answer:



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97. Perimeter of square is 20 cm then A =
cm².

A. 12

B. 16

C. 25

D. none

Answer:



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98. Diagonal of rectangle is units.

A. $\sqrt{l^2 + b^2}$

B. $\sqrt{l + b}$

C. $l + \sqrt{b}$

D. $\sqrt{l} + b$

Answer:



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99. Volume of hollow cylinder is ...

A. $\pi R - r$

B. $\pi r^2 - R$

C. $\pi R^2 - r$

D. $\pi(R^2 - r^2)$

Answer:



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100. gave the symbol π .

A. Euler

B. Pepe

C. Mount

D. None

Answer:



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101. In a cone, $(l+r)(l-r) = \dots\dots\dots$

A. h^2

B. $2h$

C. h

D. none

Answer:



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102. A cuboid has dimensions $10 \times 8 \times 6\text{cm}$
then its volume is cm^3 .

A. 190

B. 780

C. 680

D. 480

Answer:



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103. CSA of a cone is 4070 cm^2 and its diameter is 70 cm then slant height is
cm.

A. 27

B. 17

C. 37

D. 16

Answer:



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104. The sphere is of radius 2.1 cm then its volume is cm^3 .

A. 38.08

B. 381.2

C. 83.01

D. none

Answer:



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105. In $l^2 = h^2 + r^2$, $h = 15$, $r = 8$ then $l =$

.....

A. 20

B. 17

C. 16

D. 19

Answer:



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106. The surface area of a sphere is 616 sq.cm.

then its radius is cm.

A. 16

B. 12

C. 9

D. 7

Answer:



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107. In a cone, $d = 14$ cm, $l = 10$ cm then

CSA = cm^2 .

A. 220

B. 140

C. 160

D. none

Answer:



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108. In a cube, $a = 8$ cm then TSA = cm^2 .

A. 12

B. 70

C. 90

D. none

Answer:



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109. Number of edges of a cuboid is

A. 11

B. 16

C. 10

D. 12

Answer:



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110. If the diagonals of a rhombus are 10 cm and 24 cm then area is cm^2 .

A. 120

B. 160

C. 180

D. none

Answer:



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111. Volume of cone with d as diameter and h as height is $units^3$.

A. $\frac{\pi d^2}{6}$

B. $\frac{\pi d^2 h}{12}$

C. $\frac{\pi d h^2}{12}$

D. none

Answer:



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112. The area of the base of a right circular cone is 78.5 cm^2 . If its height is 12 cm then its volume is cm^3 .

A. 110

B. 814

C. 413

D. 314

Answer:



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113. The volume of a cuboid is $3,60,000 \text{ cm}^3$. If its area is $5,600 \text{ cm}^2$ then

$h = \dots\dots\dots \text{cm}$.

A. 70

B. 60

C. 95.5

D. none

Answer:



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114. The volume of cone is 462cm^3 , $r = 7\text{cm}$
then $h = \dots\dots$ cm.

A. 9

B. 10

C. 11

D. none

Answer:



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115. The area of equilateral triangle is $36\sqrt{3}cm^2$ then the perimeter is cm.

A. 36

B. 63

C. 16

D. 10

Answer:



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116. Surface area of a cube of side 27 cm is
*cm*³.

A. 1474

B. 8174

C. 1374

D. 4374

Answer:



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117. The perimeter of an equilateral triangle is 60 cm then its area is cm^2 .

A. 149.3

B. 170.1

C. 137.4

D. 173.2

Answer:



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118. If the diagonal of a cube is 2.5 m then volume is m^3 .

A. 3.01

B. 4.01

C. 8.1

D. none

Answer:



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119. $r^3 = 1728$ then $r = \dots\dots\dots$

A. 13

B. 19

C. 10

D. 12

Answer:



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120. Number of faces of a cuboid is

A. 9

B. 10

C. 6

D. 8

Answer:



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121. Two cones have their heights in the ratio 2 : 6 and radii 9 : 3. Then the ratio of their volumes.



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122. Two cones have their height in the ratio 1 : 3 and radii 3 : 1 then the ratio of their volumes.



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123. How many Balls each of radius 2 cm can be made from a solid sphere of lead of radius 8 cm.



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124. If the diameter of a sphere is 'd' then its volume is



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125. If radius is 2 cm then find the volume of a Ball.



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