Test on Surface area and volume

1. A well is to be dug with 4m inside diameter and 10m in depth. Find the quantity of Earth to be excavated. The earth taken out is spread all round to a width of 4m to form an embankment. Find the height of the embankment.
2. Rachel, an engineering student, was asked to make a model shaped like a cylinder with two cones attached as its two ends by using a thin aluminium sheet. The diameter of the model is 3cm and its length is 12cm. if each cone has a height of 2cm, find the volume of air contained in the model that Rachel made.[Assume the outer and inner dimensions of the model to be nearly the same].
3. A cubical block of side 7cm is surmounted by a hemisphere. What is the greatest diameter the hemisphere can have? Find the surface area of the solid.
4. The rain water from a roof 22m * 20m drains into a cylindrical vessel having diameter of base 2m and height 3.5m. If the vessel is just full, find the rainfall in cm.
5. The interior of a building is in the form of a cylinder of diameter 4.3m and height 3.8m, surmounted buy a cone whose vertical angle is a right angle. Find the area of the surface and the volume of the building.
6. Two cubes each of volume of $4cm^2$ are joined end to end. Find the surface area of the resulting cuboid.
7. If the radii of the circular ends of a conical bucket, which is 45cm high, are 28cm and 7cm, find the capacity of the bucket.

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1. The rainwater from a roof of dimensions 22m × 20 m drains into a cytlindrical vessel having diameter of base 2 m and height 3.5 m.If the rainwater collected from the roof just fill the cylindrical vessel .then find the height of the rainfall (in cm)
2. A solid circular height of 120 cm and radius 60 cm is placed in a right circular cylinder full of water of height 180 cm. Such that it touches the bottom.Find the volume of water left in the cylinder,if the radius of the cylinder is equal to the radius of cone.
3. A building is in the form of a cylinder surmounted by a hemispherical vaulted dome and contains 41×19/21 metre cube of air.If the internal diameter of dome is equal to its total height above the floor,find the height of the building ?
4. A rocket is in the form of a right circular cylinder closed at the lower end and surmounted by a cone with same radius as that of cylinder.The diameter and height of the cylinder are 6 cm and 12 cm,respectively.If the slant height of the conical portion is 5 cm, then find the total surface area and volume of the rocket. (use $\pi = 3.14$)
5. A milk container of height 16 cm is made of metal sheetin the form of a frustum of a cone with radii bof its lower and upper ends as 8 cm and 20 cm,respectively.Find the codt of milk at the rate of 22 rupees per L which the container can hold.
6. Water is flowing at the rate of 15 kmh-1 through a pipe of diameter 14 cm into a cuboidal pond which is 50 m long and 44 m wide.In what time will the level of water in pond rise by 21 cm ?

7. How many cubic centimetres of iron is required to construct an open box whose external dimensions are 36 cm,25 cm and 16.5 cm provided the thickness of the iron is 1.5 cm.If one cubic centimetre of iron weights 7.5 g, then find the weight of the box.
8. How many spherical lead shots of diameter 4 cm can be made out of a solid cube of lead whose edge measures 44 cm.
9. An ice-cream cone full of ice-cream having radius 5 cm and height 10 cm .Calculate the volume of ice cream ,provided that its 1/6 part is left unfilled with ice-crem.
10. A cone of radius 8 cm and height 12 cm is divided into two parts by a plane through the midpoint of its axis parallel to its base.Find the ratio of the volume of two parts.

RAIN, RAIN COME AGAIN..

We started to save you.

Save Rain water and these sums

DO THIS SUMS AGAIN & AGAIN

Surface area & Volume

GRADE: X

SUB: MATH

Rain Water harvesting tank:

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Name of the Solid	Curved Surface Area	Total Surface Area	Volume
Cuboid	$2h(l+b)$	$2(lb+bh+hl)$	lbh
Cube	$4a^2$	$6a^2$	a^3
Right Circular Cylinder	$2\pi rh$	$2\pi r(r+h)$	$\pi r^2 h$
Right Circular Cone	πrl	$2\pi r(r+l)$	$\frac{1}{3}\pi r^2 h$
Sphere	–	$4\pi r^2$	$\frac{4}{3}\pi r^2$
Hemisphere	$2\pi r^2$	$3\pi r^2$	$\frac{2}{3}\pi r^2$
Frustum of a Cone	$\pi(r_1+r_2)l$ where $l=\sqrt{h^2+(r_1-r_2)^2}$	$\pi(r_1+r_2)l + \pi r_1^2 + \pi r_2^2$	$\frac{1}{3}\pi h(r_1^2+r_2^2+r_1r_2)$

Put your answer inside the box:

1. **The rainwater from a roof of dimensions 22m× 20 m drains into a cylindrical vessel having diameter of base 2 m and height 3.5 m. If the rainwater collected from the roof just fill the cylindrical vessel .then find the height of the rainfall (in cm)**
2. **A solid circular height of 120 cm and radius 60 cm is placed in a right circular cylinder full of water of height 180 cm. Such that it touches the bottom. Find the volume of water left in the cylinder, if the radius of the cylinder is equal to the radius of cone.**
3. **A building is in the form of a cylinder surmounted by a hemispherical vaulted dome and contains 41×19/21 meter cube of air. If the internal diameter of dome is equal to its total height above the floor, find the height of the building?**
4. **A rocket is in the form of a right circular cylinder closed at the lower end and surmounted by a cone with same radius as that of cylinder. The diameter and height of the cylinder are 6 cm and 12 cm, respectively. If the slant height of the conical portion is 5 cm, then find the total surface area and volume of the rocket. (use $\pi = 3.14$)**
5. **A milk container of height 16 cm is made of metal sheeting the form of a frustum of a cone with radii of its lower and upper ends as 8 cm and 20 cm, respectively. Find the cost of milk at the rate of 22 rupees per L which the container can hold.**
6. **Water is flowing at the rate of 15 kmh-1 through a pipe of diameter 14 cm into a cubical pond which is 50 m long and 44 m wide. In what time will the level of water in pond rise by 21 cm?**
7. **How many cubic centimeters of iron is required to construct an open box whose external dimensions are 36 cm,25 cm and 16.5 cm provided the thickness of the iron is 1.5 miff one cubic centimeter of iron weights 7.5 g, then find the weight of the box.**
8. **How many spherical lead shots of diameter 4 cm can be made out of a solid cube of lead whose edge measures 44 cm.**
9. **An ice-cream cone full of ice-cream having radius 5 cm and height 10 cm .Calculate the volume of ice cream ,provided that its 1/6 part is left unfilled with ice-cram.**
10. **A cone of radius 8 cm and height 12 cm is divided into two parts by a plane through the midpoint of its axis parallel to its base. Find the ratio of the volume of two parts.**

Come, Let us watch

1. A pen stand made of wood is in the shape of a cuboid with four conical depressions to hold pens. The dimensions of the cuboid are 15cm by 10cm by 3.5cm. The radius of each of the depressions is 0.5 cm and the depth is 1.4 cm. find the volume of wood in the entire stand.
2. A solid iron pole consists of a cylinder of height 220 cm and base diameter 24 cm, which is surmounted by another cylinder of height 60 am and radius 8 cm. find the mass of the pole, given that 1cm^3 of iron has approximately 8 g mass. [use $\pi = 3.14$].
3. A playing top [*lattu*] is shaped like a cone surmounted by a hemisphere. The entire top is 5 cm in height and the diameter of top is 3.5 cm. find its whole surface area.
4. A bucket is in the form of a cone. Its depth is 24 cm and the diameters of the top and bottom ends are 30 cm and 10 cm respectively. Find the capacity of the bucket.
5. A fez, the cap used by the Truks, is shaped like the frustum of a cone. If its radius on the open side is 10 cm, radius at the upper base is 4 cm and its slant height is 15 cm, find the area of material.
6. An oil funnel made of tin sheet consists of a cylindrical portion 10 cm long attached to a frustum of a cone. If the total height is 22 cm, diameter of the cylindrical portion is 8 cm find the area of the thin sheet required to make the funnel.
7. The radii of the circular ends of a bucket of height 24 cm are 15 cm & 5 cm. find the area of its curved surface.