INDIAN SCHOOL MUSCAT
SENIOR SECTION
DEPARTMENT OF MATHEMATICS
CLASS IX
WORKSHEET NO.12
SURFACE AREAS AND VOLUMES

SECTION A: (1 MARK)

1.	Find the curved surface area of a cone whose radius is $\frac{l}{2}$ units and slant height is 2l units.	πl^2
2.	A cylindrical piece of maximum volume has to be cut of an iron cube of edge 4 cm. Find the volume of the cylinder? (CBSE 2014)	$(50.29 cm^3)$
3.	If each bag containing rice occupies 2.1 m ^{3} of space, then find the number of full bags which can be emptied into a cylindrical drum of radius 4.2 m and height 3.5 m	(92)
4.	If a square paper of side 25 cm is rolled to form a cylinder, then find its curved surface area? (CBSE 2015)	$(625 cm^2)$

SECTION B: (2 MARKS)

5.	If a hollow sphere of internal and external diameters 4 cm and 8 cm respectively melted into a cone of base diameter 8 cm, find the height of the cone? (CBSE 2015)	(14 cm)
6.	The diameters of a cone are equal. If their slant heights are in the ratio 7:4, find the ratio of their curved surface area. *(CBSE 2015)*	(7 : 4)
7.	Find the length of wire of diameter $\frac{2}{5}$ cm that can be drawn from a solid sphere of radius 9 cm *(NCERT Exemplar)*	(243 m)
8.	A solid sphere of radius 6 cm is melted into a hollow cylinder of uniform thickness. If the external radius of the base of the cylinder is 5 cm and its height is 32 cm, find the uniform thickness of the cylinder *(NCERT Exemplar)*	(1 cm)

SECTION C: (3 MARKS)

9.	Water flows out through a circular pipe whose internal diameter is 2 cm at the rate of 0.8 m/s into a cylindrical tank, the radius of whose base is 40 cm. By how much will the level rise in one and a half hour?	(2.7 m)
10.	A semicircular sheet of metal of radius 14 cm is bent into an open conical cup. Find the depth, curved surface area and capacity of the cup? $\sqrt{3}$ = 1.73 *(NCERT Exemplar)*	(12.11 cm 308 cm² 621.647cm³)
11.	The surface area of a sphere of radius 5 cm is five times the area of the curved surface of a cone of radius 4 cm. Find the height and volume of the cone? *(Exemplar)*	(3 cm 352/7 cm³)

12. The radius of a sphere is increased by 10%. Find the percentage increase in volume (CBSE 2013)   (33.1 %)


SECTION D: (4 MARKS)

13. On a hot summer day, Kamala set-up a stall near her house in the village under the shade of a tree. She took cold water in a completely full spherical matka (an earthen pot) of radius 39 cm and serve this to thirsty people passing by in a cylindrical glasses each of radius 4 cm and height 13 cm   (507 people)
(i) if she fills up to three-fourths of its height with water, find the number of people she can give water to
(ii) what values are exhibited by Kamala

14. How many bricks will be required to build a wall 30 m long, 30 cm wide and 5 m high with a provision of 2 doors each 2.5 m x 1.2 m, each brick being 20 cm x 16 cm x 8 cm, when 1/9th of the wall is filled with cement?   (15000)
(NCERT Exemplar)

15.
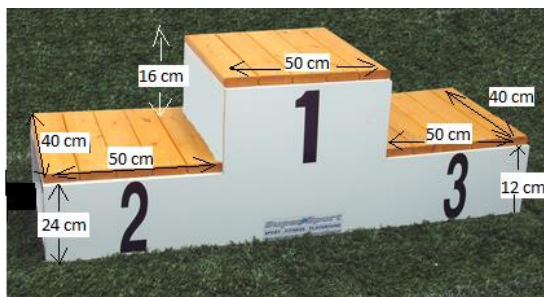
The given figure shows a victory stand whose each face is rectangle. Find its volumes   (CBSE 2012)   (152000 cm^3)

16. A conical tent was set-up to accommodate 10 students and one teacher for a summer camp in which the students participated in activities like planting saplings, yoga, cleaning lakes, testing the water for contaminants and pollutant levels and desilt the lake bed and also using the silt to strengthen bunds   (3.74 m approx)
(i) Find the radius and height of the tent if each person must have 4 m^2 of the space on the ground and 20 m^3 of air to breathe.   (15 m)
(ii) What values do the participants learn during their stay in such summer camps?