INDIAN SCHOOL AL WADI AL KABIR

Class X, Mathematics

Worksheet-SURFACE AREAS AND VOLUMES

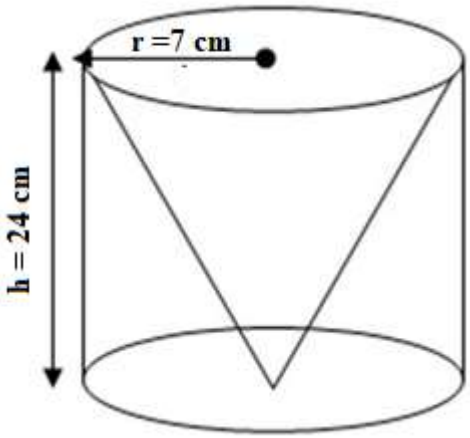
Q. No.	Questions of 1 Mark each.							
1.	A solid is hemispherical at the bottom and conical (of same radius) above it. If the surface areas of the two parts are equal, then the ratio of its radius and the slant height of the conical part is							
	(A)	2 : 1	**(B)**	1 : 2	**(C)**	3 :2	**(D)**	3 : 5
2.	Two cubes each with edge 6 cm are joined end to end. The surface area of the resulting cuboid is							
	(A)	360 cm^2	**(B)**	580 cm^2	**(C)**	960 cm^2	**(D)**	475 cm^2
3.	A conical military tent having diameter of the base 24 m and slant height of the tent is 13 m, then the curved surface area of the cone is							
	(A)	$4037cm^2$	**(B)**	3437 cm^2	**(C)**	343 cm^2	**(D)**	$\frac{3437}{7} cm^2$
4.	Volume and surface area of a solid hemisphere are numerically equal. What is the diameter of the hemisphere?							
	(A)	9 units	**(B)**	119 units	**(C)**	18 units	**(D)**	27 units
5.	A joker's cap is in the form of a right circular cone of base radius 7 cm and the slant height is 25 cm. What is the area of the cap?							
	(A)	590 cm^2	**(B)**	1450 cm^2	**(C)**	550 cm^2	**(D)**	450 cm^2
6.	If a solid cylinder of radius r and height h is placed over other cylinder of same height and radius, then the surface area of shape so formed is							
	(A)	$\pi rh + 2\pi r^2$	**(B)**	$4\pi rh + 2\pi r^2$	**(C)**	$4\pi rh + \pi r^2$	**(D)**	$4\pi rh - 2\pi r^2$
7.	The radius (in cm) of the largest right circular cone that can be cut out from a cube of edge 4.2 cm is							
	(A)	4.2	**(B)**	8.1	**(C)**	1.05	**(D)**	2.1

8.	How many bags of grain can be stored in a cuboid granary $12m \times 6m \times 5m$. If each bag occupies a space of 0.48 m^3 ?							
	(A)	650	**(B)**	740	**(C)**	750	**(D)**	200
9.	In a swimming pool measuring 90 m × 40 m, 150 men take a dip. If the average displacement of water by a man is 8 m^3, then rise in water level is							
	(A)	33.33 cm	**(B)**	31.33 cm	**(C)**	23.33 cm	**(D)**	41.23 cm
10.	Two cylindrical cans have equal base areas. If one of the cans is 15 cm high and other is 20 cm high, then the ratio of their volumes is							
	(A)	3:5	**(B)**	9:10	**(C)**	3:4	**(D)**	4:5
11.	Assertion : Total Surface area of the top is the sum of the curved surface area of the hemisphere and the curved surface area of the cone. Reason : Top is obtained by joining the plane surfaces of the hemisphere and cone together.  (a) Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A). (b) Both assertion (A) and reason (R) are true and reason (R) is not the correct explanation of assertion (A). (c) Assertion (A) is true but reason (R) is false. (d) Assertion (A) is false but reason (R) is true.							
12.	Assertion : If diameter of a sphere is decreased by 25%, then its curved surface area is decreased by 43.75%. Reason : Curved surface area is increased when diameter decreases. (a) Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A).							

	(b) Both assertion (A) and reason (R) are true and reason (R) is not the correct explanation of assertion (A). (c) Assertion (A) is true but reason (R) is false. (d) Assertion (A) is false but reason (R) is true.
	CASE STUDY 1: • Ajay is a Class X student. His class teacher arranged a historical trip to great Stupa of Sanchi. She explained that Stupa of Sanchi is great example of architecture in India. Its base part is cylindrical in shape. The dome of this stupa is hemispherical in shape. It also contains a cubical shape part called Hermika at the top. Path around hemispherical stupa is known as Pradakshina Path.  Based on the above information, answer the following questions.
13.	Find the lateral surface area of the Hermika, if the side of cubical part is 8 m.
14.	The diameter and height of the cylindrical base part are respectively 42 m and 12 m. If the volume of each brick used is 0.01 m^3, then find the number of bricks used to make the cylindrical base.
15.	If the diameter of the hemispherical dome is 42 m, then find the volume.
16.	The radius of the Pradakshina path is 25 m. If a person walks 14 rounds on this path, then find the distance covered by that person.
17.	What is the curved surface area of the dome?

CASE STUDY 2:

One day Rinku was going home from school, saw a carpenter working on wood. He found that he is carving out a cone of same height and same diameter from a cylinder. The height of the cylinder is 24 cm and base radius is 7 cm. While watching this, some questions came into Rinkus mind. Help Rinku to find the answer of the following questions.



18. Find the slant height of the conical cavity.

19. What is the curved surface area of the conical cavity so formed?

20. What is the external curved surface area of the cylinder?

21. Find the volume of conical cavity.

Answers

Answers	1	B	2	A	3	D	4	A
	5	C	6	B	7	D	8	C
	9	A	10	C	11	a	12	c
	13	256 sq. m	14	1663200	15	19404 cu. m	16	2200 m
	17	2772 sq. m	18	25 cm	19	550 sq.cm	20	1056 sq.cm
	21	1232 cu. cm						