



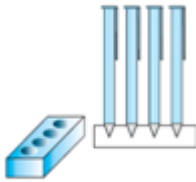
DAV NANDRAJ PUBLIC SCHOOL

BARIATU, RANCHI

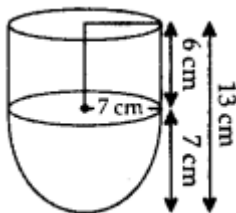
FREQUENTLY ASK QUESTIONS IN BOARD EXAMINATION (X)

SUBJECT: MATHEMATICS

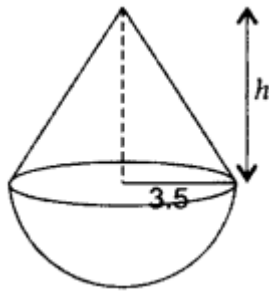
1. A metal smith want a vessel in the form a hemispherical bowl mounted by a hollow cylinder. the diameter of the hemispherical part is 42cm and the total height of the vessel is 63 cm. based on the above information answer the following question: -
 - a) Find the outer surface area of the hemispherical part, neglecting the thickness of the metal.
 - b) Find the outer surface area of the cylindrical part of the vessel.
 - c) Find the volume of the hemi – spherical part of the vessel.
 - d) Find the volume of the cylindrical portion of the vessel.
 - e) Find the total surface area of the vessel.
2. 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 15 cm × 10 cm × 3.5 cm. The radius of each of the depressions is 0.5 cm and the depth is 1.4 cm. Based on the above information answer the following questions.



- a) Find the volume the cuboid.
 - b) Find volume of the conical depression.
 - c) Find the volume of the wood in the stand
 - d) Find surface area of the cuboid.
 - e) Find surface area of four conical cavities.
3. A vessel is in the form of a hemispherical bowl surmounted by a hollow cylinder of same diameter. The diameter of the hemispherical bowl is 14 cm and the total height of the vessel is 13 cm. Find the total (inner) surface area of the vessel. (Use $\pi = 22/7$)



4. A solid wooden toy is in the form of a hemisphere surmounted by a cone of same radius. The radius of hemisphere is 3.5 cm and the total wood used in the making of toy is 16656 cm^3 . Find the height of the toy. Also, find the cost of painting the hemispherical part of the toy at the rate of ₹10 per cm^2 . [Use $\pi = 22/7$]



5. From a solid cylinder of height 7 cm and base diameter 12 cm, a conical cavity of same height and same base diameter is hollowed out. Find the total surface area of the remaining solid. [Use $\pi = 22/7$]

STATISTICS

6. The mean of the following distribution is 18. Find the value of f .

Class interval	11-13	13-15	15-17	17-19	19-21	21-23	23-25
Frequency	3	6	9	13	f	5	4

7. Find the mean of the following frequency distribution by short cut method:

Class interval	0-10	10-20	20-30	30-40	40-50	50-60	60-70
Frequency	4	4	7	20	12	8	5

8. If the median of the following frequency distribution is 32.5. Find the values of f_1 and f_2 .

Classes	0-10	10-20	20-30	30-40	40-50	50-60	60-70	Total
Frequency	f_1	5	9	12	f_2	3	2	40

9. Find the mode, median and mean for the following data:

Marks obtained	25-35	35-45	45-55	55-65	65-75	75-85
Number of Students	7	31	33	17	11	1

10. The median of the distribution given below is 14.4. Find the values of 'x' and 'y', if the sum of frequency is 20.

Class interval	0-6	6-12	12-18	18-24	24-30
Frequency	4	x	5	y	1

PROBABILITY

11. Two dice are thrown simultaneously. Find the probability of getting a doublet.
12. A bag contains 15 white and some black balls. If the probability of drawing a black ball from the bag is thrice that of drawing a white ball, find the number of black balls in the bag.
13. From a pack of 52 playing cards, Jacks, Queens and Kings of red colour are removed. From the remaining, a card is drawn at random. Find the probability that drawn card is:
- a black King
 - a card of red colour

- (iii) a card of black colour
14. Two different dice are rolled together. Find the probability of getting:
- (i) the sum of numbers on two dice to be 5.
 - (ii) even numbers on both dice.
15. Two different dice are thrown together. Find the probability that the numbers obtained.
- (i) have a sum less than 6
 - (ii) have a product less than 16

