MENSURATION

1. A cylindrical tube opened at both the ends is made of iron sheet which is 2 cm thick. If the outer diameter is 16 cm and its length is 100 cm, find how many cubic centimeters of iron has been used in making the tube ?find the total surface area of the pipe.

2.Water flows out through a circular pipe, whose internal diameter is 2 cm,at the rate of 0.7 m per second into a cylindrical tank,the radius of whose base is 40 cm.By how much the height of water will rise in half hour?

3.Three cubes each of side 10 cm are joined end to end.Find the surface area of the resulting solid.

4.The dimensions of a cuboid are in the ratio 5:3:1 and its total surface area is 414 m^2.Find the dimensions of the cuboid. Also find its volume.

5.A square piece of cardboard with sides 25 cm has a small square of side 2.05cm cut out from each corner.The remaining flaps are turned so as to make a box 2.5 cm deep.Find,
i) volume of the box.   ii)outer surface area of the box.

6. Hameed has built a cubical water tank with lid for his house, with each outer edge 1.5 m long. He gets the outer surface of the tank excluding the base,covered with square tiles of side 25 cm. Find how much he would spend for the tiles, if the cost of the tiles is ` 360 per dozen.

7. Shanti Sweets Stall was placing an order for making cardboard boxes for packing their sweets. Two sizes of boxes were required. The bigger of dimensions 25 cm × 20 cm × 5 cm and the smaller of dimensions 15 cm × 12 cm × 5 cm. For all the overlaps, 5% of the total surface area is required extra. If the cost of the cardboard is Rs 4 for 1000 cm^2, find the cost of cardboard required for supplying 250 boxes of each kind.

8. A metal pipe is 77 cm long. The inner diameter of a cross section is 4 cm, the outer diameter being 4.4 cm. Find its (i) inner curved surface area, (ii) outer curved surface area, (iii) total surface area.

9. The frame of a lampshade is to be covered with a decorative cloth. The frame has a base diameter of 20 cm and height of 30 cm. A margin of 2.5 cm is to be given for folding it over the top and bottom of the frame. Find how much cloth is required for covering the lampshade.

10. A river 2m deep and 45m wide is flowing at a rate of 3km/h.Find the quantity of water that runs into the sea per minute.

11.A wall 15m long,30cm wide and 4m high is made of bricks, each measuring 22cm×12.5cm×7.5 cm.If $\dfrac{1}{12}$ of the total volume of the wall consists of mortar, how many bricks are there in the wall?

12. The outer dimensions of a closed wooden box are 10 cm by 8 cm by 7 cm. Thickness of the wood is 1 cm . Find the total cost of wood required to make the box if 1 cm^3 of wood costs Rs. 2

13.The curved surface area of a cylinder is 4400cm^2 and the circumference of its base is 110cm.Find the volume of the cylinder.

13. A patient in a hospital is given soup daily in a cylindrical bowl of diameter 7 cm. If the bowl is filled with soup to a height of 4 cm, how much soup the hospital has to prepare daily to serve 250 patients?

14. The walls and ceiling of a room are to be plastered. The length, breadth and height of a room are 4.5 m , 3 m and 350 cm respectively. Find the cost of painting the foue walls and the celling at the rate of Rs. 8 per square m.
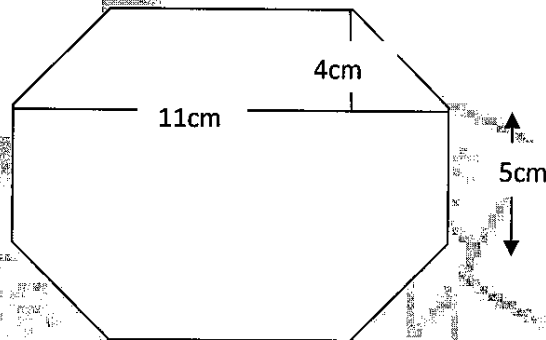
AREA OF A TRAPEZIUM AND A POLYGON

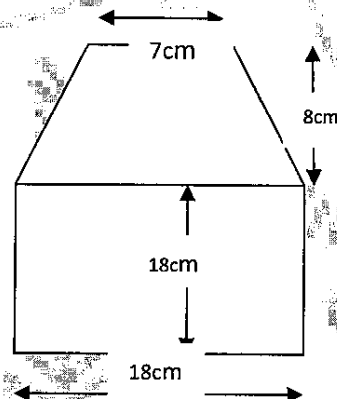1.Find the area of the following regular hexagon.

23 cm   13 cm   11cm   5cm
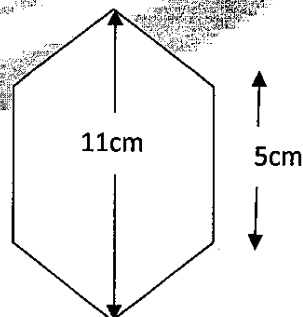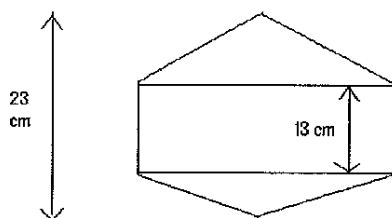
2.i) Find the area of the following diagram:
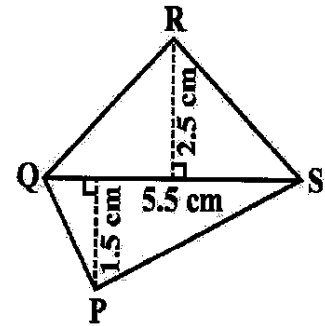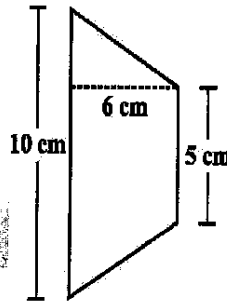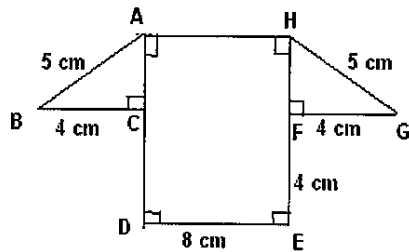
ii) Find the area of the regular hexagon and regular octagon.

iii)

3. The parallel sides of a trapezium are 60 cm and 80 cm and non parallel sides are 26 cm and 26 cm. Find the area of the trapezium.

4. Length of the fence of a trapezium shaped field ABCD is 120 m. If BC = 48 m, CD = 17 m and AD = 40 m, find the area of this field. Side AB is perpendicular to the parallel sides AD and BC.

5. Mohan wants to buy a trapezium shaped field. Its side along the river is parallel to and twice the side along the road. If the area of this field is 10500 m² and the perpendicular distance between the two parallel sides is 100 m, find the length of the side along the river.

DIRECT AND INVERSE PROPORTION

1. A 5 m 60 cm high vertical pole casts a shadow 3 m 20 cm long. Find at the same time (i) the length of the shadow cast by another pole 10 m 50 cm high (ii) the height of a pole which casts a shadow 5m long.

2. A loaded truck travels 14 km in 25 minutes. If the speed remains the same, how far can it travel in 5 hours?

3. If a box of sweets is divided among 24 children, they will get 5 sweets each. How many would each get, if the number of the children is reduced by 4?

4. A farmer has enough food to feed 20 animals in his cattle for 6 days. How long would the food last if there were 10 more animals in his cattle?

5. A contractor estimates that 3 persons could rewire a house in 4 days. If, he uses 4 persons instead of three, how long should they take to complete the job?

6.A batch of bottles were packed in 25 boxes with 12 bottles in each box. If the same batch is packed using 20 bottles in each box, how many boxes would be filled?

7. A factory requires 42 machines to produce a given number of articles in 63 days. How many machines would be required to produce the same number of articles in 54 days?

8. A car takes 2 hours to reach a destination by travelling at the speed of 60 km/h. How long will it take when the car travels at the speed of 80 km/h?

9. Two persons could fit new windows in a house in 3 days.
(i) One of the persons fell ill before the work started. How long would the job take now?
(ii) How many persons would be needed to fit the windows in one day?

10. A school has 8 periods a day each of 45 minutes duration. How long would each period be, if the school has 9 periods a day, assuming the number of school hours to be the same?

LINEAR GRAPHS:

1.Use graph paper for the following question.
   Plot the following points A(2,3) , B (5,3) C (5,5) , D(2,5) . Join the points . Name the figure.

2. In which quadrant or on which axis do each of the points (– 2, 4),(3, – 1),(–1, 0),(1, 2) and(–3, –5) lie? Verify your answer by locating them on the Cartesian plane.

3. Draw the graph for the given information:

Length of side of a square(in cm.)	1	2	3	4	5
Area of square (in cm^2)	1	4	9	16	25

4. Draw the graph of the function A = x^2 . From the graph , find the value of A when(i) x = 2 (ii) x =4

PROBABILITY

1. A box contains 3 blue, 2 white, and 4 red marbles. If a marble is drawn at random from the box, what is the   probability that it will be (i) white? (ii) blue? (iii) red?

2.Ten cards are numbered as 1, 2 , 3 , 4 , 5 , ...10 respectively . They are kept in a box and mixed thoroughly . One card is chosen at random from the box . What is the probability of (i)getting the number 8 (ii) getting a number less than 5 (iii) getting a number greater than 4 (iv) getting a one – digit number

3.A bag contains 4 white and 5 blue balls . They are mixed thoroughly and one ball is drawn at random . What is the probability of getting (i) a white ball ? (ii) a blue ball ?

4. When a die is thrown, list the outcomes of an event of getting (i) (a) a prime number (b) not a prime number. (ii) (a) a number greater than 5 (b) a number not greater than 5 .

5. Numbers 1 to 10 are written on ten separate slips (one number on one slip), kept in a box and mixed well. One slip is chosen from the box without looking into it. What is the probability of .
   (i) getting a number 6?   ii)getting a number less than 6?
   (iii)getting a number greater than 6?   iv)getting a 1-digit number?

SOLID SHAPES

1. Verify Euler's relation for (i) A tetrahedron   (ii) A triangular prism iii)cuboid iv)Triangular Pyramid v)Prism with square base vi)Pyramid with square base

2.Can a polyhedron have 10 faces,20 edges and 15 vertices?

VALUE BASED QUESTIONS:

1. 240 students reside in a Hostel. Out of which 50% go for the yoga classes early in the morning 25% have joined the Gym club and 15% of them go for the morning walk. Rest of the students have joined the laughing club.
   a. What is the probability of students who have joined the laughing club?
   b. What is the probability of students who have not joined any class or club?
   c. Which value is depicted by students?

SYLLABUS:

i)Exponents ii)Operations on Algebraic Expressions iii)Factorisation iv)Linear Equations v)Compound Interest vi)Proportion vii)Time and Work viii)Polygons ix)Quadrilaterals x)Parallelograms xi)Area of Trapezium xii)Three Dimensional Figures xiii)Volume and Surface Area xiv)Probability xv)Graphs