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J S U N I L T U T O R I A L

P U N J A B I C O L O N Y G A L I 0 1

10th Class Sample Test Paper – 2011

Subject - Mathematics

Assignment sa2 AREA RELATED TO CIRCLES

Q1. In fig 1, rectangular park is there of 21x14 m^2 and on its two sides two semicircular parks are joined as shown in fig. find the length of the wire to fence the whole park and also find the cost of ploughing the park at the rate of Rs. 40 per sq. meter

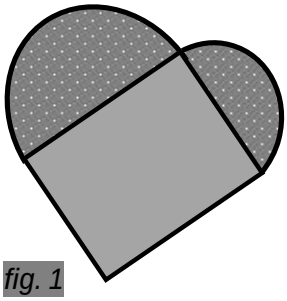

fig. 1

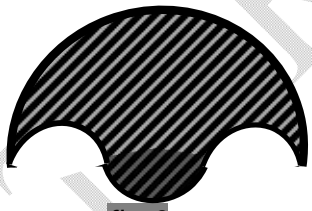

fig. 2

Q2. In the adjoining fig 2 , the boundary of shaded region consists of four semicircular arcs, three smaller being equal. If diameters of the largest is 21cm , calculate the area and perimeter of the shaded region .

Q3. In the given fig 3, the shape is that of sector of the circle with centre O and $\angle BOD = 90^{O}$. If BO=DO=60 cm ,find the area and perimeter of the shape.(Use π = 3.14)

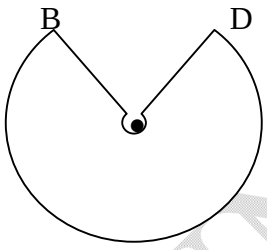

fig. 3

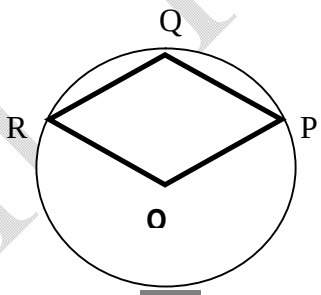

fig. 4

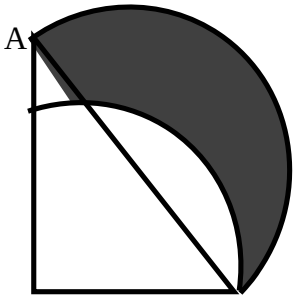

fig. 5

Q4. In the given fig4 OPQR is a rhombus, three of whose vertices lie on the circle with centre O. If the area of the rhombus is $32\sqrt{3}$ sqcm , find the radius of the circle .

Q5. In the given fig 5 , ABC is a right angled triangle at B , AB= 28cm and BC= 21cm . With AC as diameter a semicircles is drawn and with BC as radius a quadrant is drawn . Find the area of the shaded region. A

fig. 6

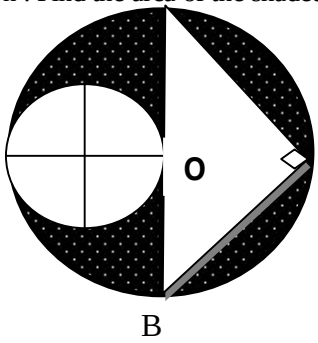

fig.7

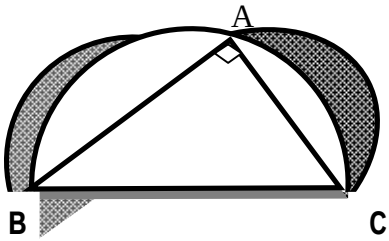

fig.8

Q6. One shooting target board is there as shown in fig.6 having three concentric circular shapes ,if the radius of red part is 5cm, and the width of concentric circles are same i.e. 3cm . find the area of each target portion (different colored red, black, white) .
Q7. In the given fig.7, AB is diameter of the circle with centre O and OA = 21cm, find the area of shaded region.
Q8. In the adjoining fig.8, ABC is a right angle triangle, $\angle A$ is right angle . AB=4cm ,AC=3cm, . semi circles are drawn on AB , AC and BC as diameters . find the area of shaded region

SURFACE AREA AND VOLUMES

Q.1 A tent consists of a frustum of a cone , surmounted by a cone . If the diameters of the upper & lower circular ends of the frustum be 14m and 26m respectively , the height of the frustum be 8m and the slant height of the surmounted conical portion be 12m, (radius of cone is same that of upper part of frustum) find the area of the canvas required to make the tent .

Q2. Spherical marbles of diameter 1.4 cm each are dropped into a cylindrical beaker of the radius 3.5 cm containing some water . Find the number of marbles that should be dropped in the beaker so that the water level in the beaker rises by 5.6 cm.

Q3. A bucket is in the shape of a frustum of a cone and holds 28.49 liters of milk . The radii of the top and bottom are 28cm and 21cm respectively . Find the height of the bucket.

Q4. A farmer connects a pipe of the internal diameter 20 cm from a canal into a cylindrical tank in his field of 10 m diameter and 2m depth . If the water flows through the pipe at the rate of 3km/hr , in how much time will the tank be filled?

Q5. The rain water from a roof 22m x 20m drains into a cylindrical vessel having diameter of the base diameter 2m and height 3.5 m. If the vessel is just full, find the rainfall in cm. (ht. of the water level)

Q6. The surface area of the sphere and cube are equal. Prove that their volumes are in the ratio 1: $\sqrt{\frac{\pi}{6}}$

Q7. The height of the cone is 30cm . A small cone is cut off at the top by a plane parallel to the base . If its volume be $\frac{1}{27}$ th of the volume of the given cone, at what height above the base is the section made ?

Q8. A metallic cylinder has diameter 12cm and height 10cm ,

It is made of iron. To reduce its weight , the conical hole is

drilled in the cylinder as shown in the given fig . the radius

of the conical hole is 3cm and its depth is 6cm.

calculate the volume of the iron in the metallic cylinder

[π=3.14]