LaTeX Assignment

1. The hour-hand of a clock is 6 cm long . The angle swept by it between 7:20 a.m. and 7:55 a.m. is:

   (a) $(\frac{35}{4})^\circ$
   (b) $(\frac{35}{2})^\circ$
   (c) 35°
   (d) 70°

2. In the given figure, $AB \parallel PQ$.If $AB = 6$ cm,$PQ = 2$ cm and $OB = 3$ cm,then the length of OP is:

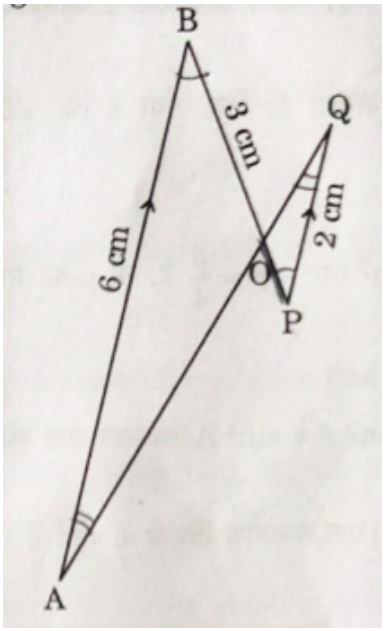

Figure 1:

   (a) 9cm
   (b) 3cm
   (c) 4cm
   (d) 1cm

3. The length of the shadow of a tower on the plane ground is $\sqrt{3}$ times the height of the tower.Find the angle of elevation of the sun.

4. The angle of elevation of the top of a tower from a point on the ground which is 30 m away from the foot of the tower,is 30° .Find the height of the tower.

5. A car has two wipers which do not overlap. Each wiper has a blade of length 21 cm sweeping through an angle of 120°. Find the total area cleaned at each sweep of the two blades.

6. As observed from the top of a 75 m high lighthouse from the sea-level,the angles of depression of two ships are 30° and 60°.If one ship is exactly behind the other on the same side of the lighthouse,find the distance between two ships.(Use $\sqrt{3} = 1.73$)

7. From a point on the ground,the angle of elevation of the bottom and top of a transmission tower fixed at the top of 30 m high building are 30°and 60°, respectively.Find the height of the transmission tower.(Use $\sqrt{3} = 1.73$)

8. Sides AB and BC and median AD of a triangle ABC are respectively proportional to sides PQ and QR and median PM of $\triangle PQR$. Show that $\triangle ABC \sim \triangle PQR$.

9. Through the mid-point M of the CD of a parallelogram $ABCD$,the line BM is drawn intersecting AC in L and AD(produced) in E.Prove that $EL = 2BL$.

10. In an annual day function of a school,the organizers wanted to give a cash prize along with a memento to their best students. Each memento is made as shown in the figure and its base $ABCD$ is shown from the front side. The rate of silver plating is ₹ 20 *per* cm^2.

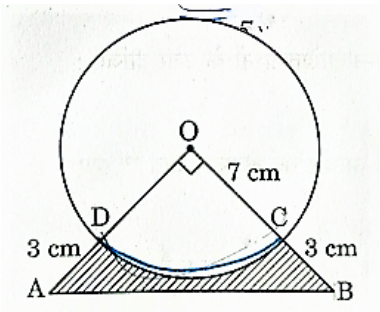

Figure 2: memento

Based on the above, answer the following questions:

(i) What is the area of the quadrant $ODCO$?
(ii) Find the area of $\triangle AOB$.
(iii) What is the total cost of silver plating the shaded part $ABCD$?
(iv) what is the length of arc CD?