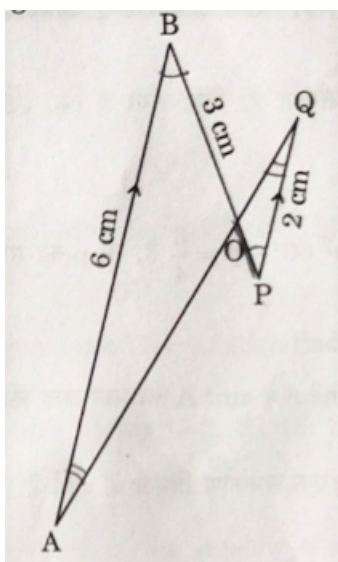


## L<sup>A</sup>T<sub>E</sub>X Assignment

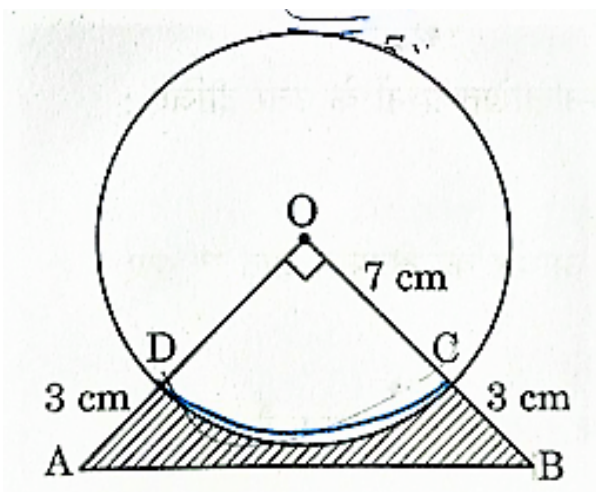
1. The hour-hand of a clock is 6 cm long . The angle swept by it between 7:20 a.m. and 7:55 a.m. is:  
A.  $(\frac{35}{4})^\circ$    B.  $(\frac{35}{2})^\circ$    C.  $35^\circ$    D.  $70^\circ$
2. In the given figure,  $AB \parallel PQ$ . If  $AB=6\text{cm}$ ,  $PQ=2\text{ cm}$  and  $OB=3\text{cm}$ , then the length of  $OP$  is:



- A. 9cm   B. 3cm   C. 4cm   D. 1cm
3. (a) 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.  
**OR**  
(b) 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  $30^\circ$ . Find the height of the tower.
  4. A car has two wipers which do not overlap. Each wiper has a blade of length 21 cm sweeping through an angle of  $120^\circ$ . Find the total area cleaned at each sweep of the two blades.
  5. (a) As observed from the top of a 75 m high lighthouse from the sea-level, the angles of depression of two ships are  $30^\circ$  and  $60^\circ$ . If one ship is exactly behind the other on the same side of the lighthouse, find the distance between two ships.  
(Use  $\sqrt{3} = 1.73$ )  
**OR**  
(b) 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  $30^\circ$  and  $60^\circ$ , respectively. Find the height of the transmission tower. (Use  $\sqrt{3} = 1.73$ )
  6. (a) 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  $\triangle ABC \sim \triangle PQR$ .

**OR**

- (b) 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  $EL=2BL$ .
7. 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  $cm^2$ .



Based on the above, answer the following questions:

- (a) What is the area of the quadrant ODCO?
  - (b) Find the area of  $\triangle AOB$ .
  - (c) i. What is the total cost of silver plating the shaded part ABCD?
- OR**
- ii. what is the length of arc CD?