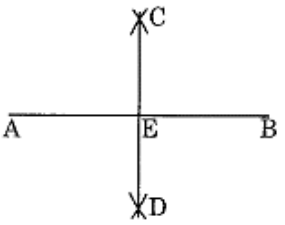
Board –CBSE	Class – 6th	Topic – Practical Geometry Ex: 14.5

Exercise 14.5

1. Draw AB of length 7.3 cm and find its axis of symmetry.

Ans. Step I: Draw $\overline{AB} = 7.3$ cm



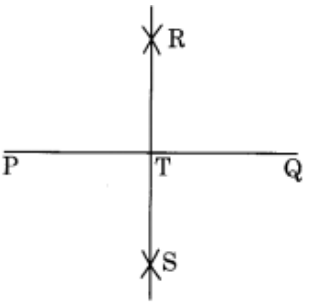
Step II: Taking A and B as center and radius more than half $\overline{AB}$, draw two arcs which intersect each other at C and D.

Step III: Join C and D to intersect $\overline{AB}$ at E.

Thus, CD is the perpendicular bisector or axis of symmetry of $\overline{AB}$.

2. Draw a line segment of length 9.5 cm and construct its perpendicular bisector.

Ans. Step I: Draw a line segment $\overline{PQ} = 9.5$ cm



Step II: With centers P and Q and radius more than half of PQ, draw two arcs which meet each other at R and S.

Step III: Join R and S to meet $\overline{PQ}$ at T.

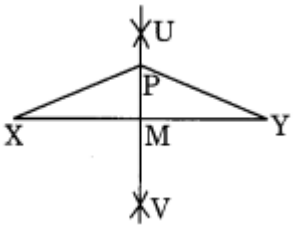
Thus, RS is the perpendicular bisector of PQ.

3. Draw the perpendicular bisector of $\overline{XY}$ whose length is 10.3 cm.

(a) Take any point P on the bisector drawn. Examine whether PX = PY.

(b) If M is the midpoint of $\overline{XY}$. What can you say about the length of MX and MY?

Ans. Step I: Draw a line segment $\overline{XY}$ = 10.3 cm.



Step II: With center X and Y and radius more than half of XY, draw two arcs which meet each other at U and V.

Step III: Join U and V which meets $\overline{XY}$ at M.

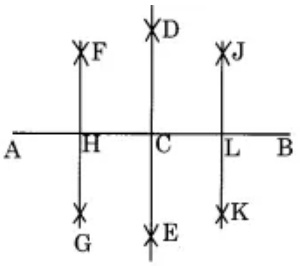
Step IV: Take a point P on $\overline{UV}$.

(a) On measuring, PX = PY = 5.6 cm.

(b) On measuring, $\overline{MX} = \overline{MY} = \frac{1}{2}$ XY = 5.15 cm.

4. Draw a line segment of length 12.8 cm. Using a compass, divide it into four equal parts. Verify by actual measurement.

Ans. Step I: Draw a line segment $\overline{AB}$ = 12.8 cm



Step II: With center A and B and radius more than half of AB, draw two arcs that meet each other at D and E.

Step III: Join D and E which meets $\overline{AB}$ at C which is the midpoint of $\overline{AB}$.

Step IV: With center A and C and radius more than half of AC, draw two arcs that meet each other at F and G.

Step V: Join F and G which meets $\overline{AC}$ at H which is the midpoint of $\overline{AC}$.

Step VI: With center C and B and radius more than half of CB, draw two arcs that meet each other at J and K.

Step VII: Join J and K which meets $\overline{AB}$ at L which is the midpoint of $\overline{AB}$.

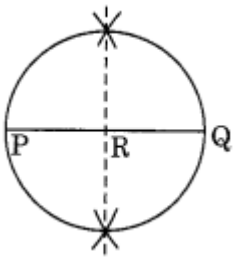
Thus, on measuring, we find

$\overline{AH} = \overline{HC} = \overline{CL} = \overline{LB} = 3.2$ cm.

5. With $\overline{PQ}$ of length 6.1 cm as diameter, draw a circle.

Ans. Step I: Draw $\overline{PQ}$ = 6.1 cm

Step II: Draw a perpendicular bisector of $\overline{PQ}$ which meets $\overline{PQ}$ at R i.e. R is the midpoint of $\overline{PQ}$.



Step III: With center R and radius equal to $\overline{RP}$, draw a circle passing through P and Q.

Thus, the circle with diameter $\overline{PQ}$ = 6.1 cm is the required circle.

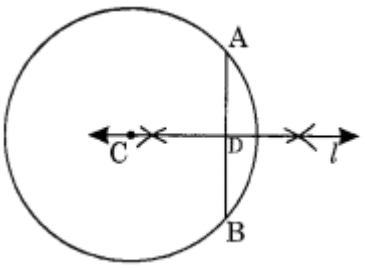
6. Draw a circle with center C and radius 3.4 cm. Draw any chord $\overline{AB}$.

Construct the perpendicular bisector of $\overline{AB}$ and examine if it passes through C.

Ans. Step I: Draw a circle with center C and a radius of 3.4 cm.

Step II: Draw any chord $\overline{AB}$.

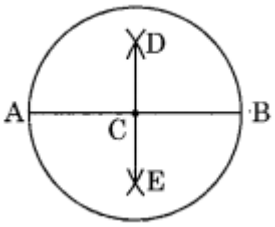
Step III: Draw the perpendicular bisector of $\overline{AB}$ which passes through the center C.



7. Repeat Question number 6, if $\overline{AB}$ happens to be a diameter.

Ans. Step I: Draw a circle with center C and a radius of 3.4 cm.

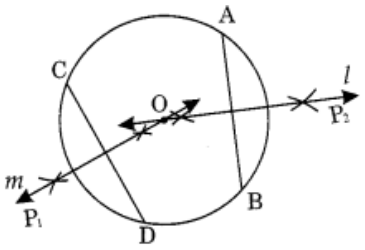
Step II: Draw a diameter AB of the circle.



Step III: Draw a perpendicular bisector of AB which passes through the center C and on measuring, we find that C is the midpoint of $\overline{AB}$.

8. Draw a circle of radius 4 cm. Draw any two of its chords.
Construct the perpendicular bisectors of these chords. Where do they meet?

Ans. Step I: Draw a circle with center 0 and radius 4 cm.



Step II: Draw any two chords $\overline{AB}$ and $\overline{CD}$ of the circle.

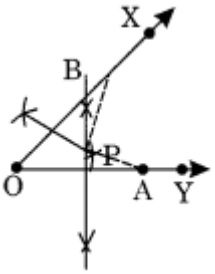
Step III: Draw the perpendicular bisectors of $\overline{AB}$ and $\overline{CD}$ i.e. I and m.

Step IV: On producing the two perpendicular bisectors meet each other at the center O of the circle.

9. Draw any angle with vertex O. Take a point A on one of its arms and B on another such that OA = OB.
Draw the perpendicular bisectors of $\overline{OA}$ and $\overline{OB}$. Let them meet at P. Is PA = PB?

Ans. Step I: Draw an angle XOY with O as its vertex.

Step II: Take any point A on OY and B on OX, such that OA + OB.



Step III: Draw the perpendicular bisectors of OA and OB which meet each other at a point P.

Step IV: Measure the lengths of $\overline{PA}$ and $\overline{PB}$. Yes, $\overline{PA} = \overline{PB}$.