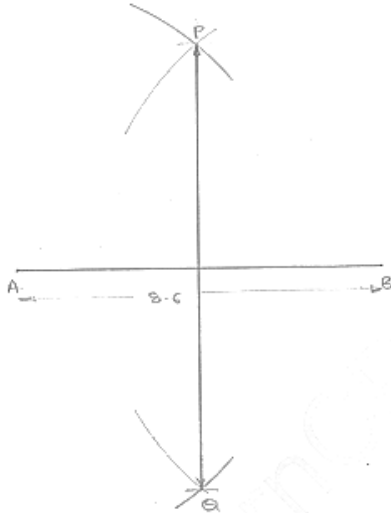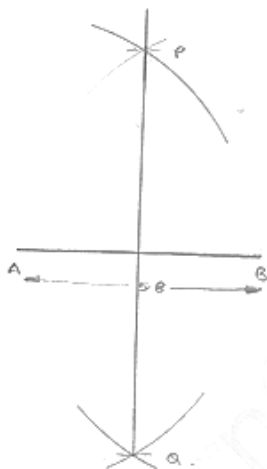# Constructions – 17.1

1.

Sol:

Steps of construction:

1. Draw a line segment AB of $8 \cdot 6cm$

2. With center A and radius more than $n\dfrac{1}{2}AB$, draw arcs, one on each side of AB

3. With center B and same radius, draw arcs cutting the previous arcs at P and Q respectively
4. Join PQ

$\therefore AC = BC = 4 \cdot 3cm$

2.
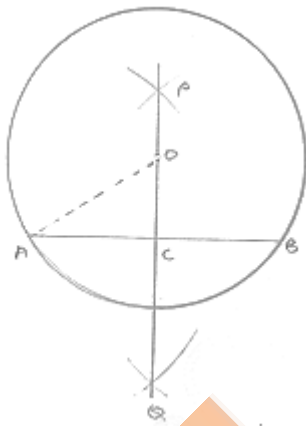
Sol:

Steps of construction:

1. Draw a line segment AB of $5\cdot 8cm$

2. With center A and radius more than $\dfrac{1}{2}AB,$ draw arcs with one on each side of AB

3. With center B and same radius draw arcs cutting the previous arcs at P and Q respectively.

4. Join PQ

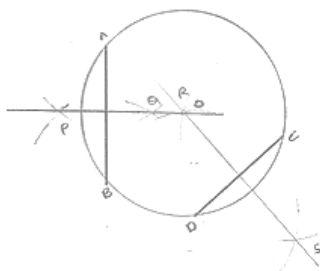Hence, PQ is the perpendicular bisector of AB.

3.

Sol:

Steps of construction:

1. With center O and radius 5cm draw a circle

2. Draw a chord AB.

3. With center A and radius more than $\dfrac{1}{2}AB,$ draw arcs one on each side of

4. With center B and same radius draw arcs cutting previous arcs at P and Q respectively.

5. Join PQ

∴ yes perpendicular bisector PQ of AB passes through center of the circle.
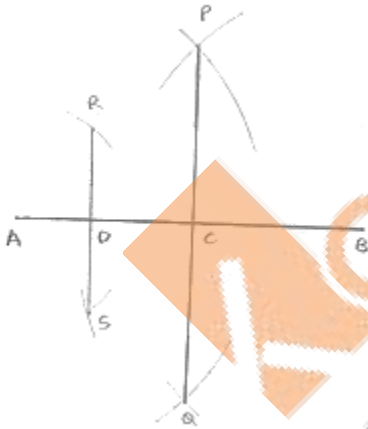
4.

Sol:

Steps of construction:

1. With center O and any radius, draw a circle

2. Draw two chords AB and CD.

3. With center A and radius more than $\frac{1}{2}AB$, draw arcs, one on each side of AB

4. With center B and same radius draw arcs cutting previous arcs at P and Q respectively.

5. Join PQ

6. With center D and radius more than $\frac{1}{2}DC$. draw arcs, one on each side of DC

7. With center and same radius, draw arcs cutting previous arcs at R and S respectively

8. Join RS

Both perpendicular bisector PQ and RS intersect each other at the center O of he circle.
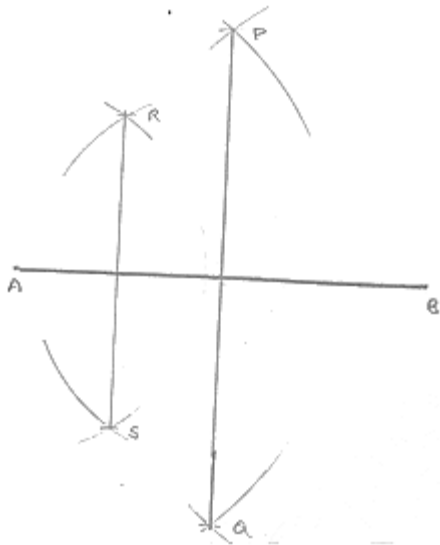
5.

Sol:

Steps of construction:

1. Draw a line segment AB of 10*cm*

2. With center A and radius more than $\frac{1}{2}AB$, draw arcs one on each side of AB

3. With center B and same radius draw arcs cutting previous arcs at P and Q respectively.

4. Join PQ and which intersect AB at C

5. With center A and radius more than $\frac{1}{2}AC$, drawing on each side of AC.

6. With center C and same radius, draw arcs cutting previous arcs at R and S respectively.

7. Join RS and which intersect AC $a+b$

$\therefore AD = 2 \cdot 5cm.$
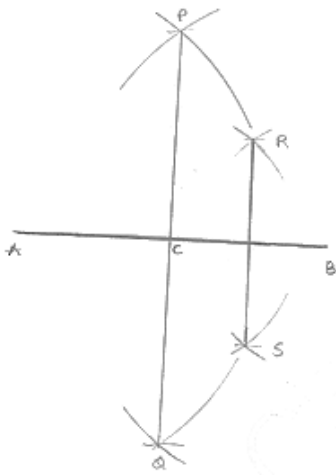
6.

    Sol:

Steps of construction:

1. Draw a line segment AB

2. With center A and radius more than $\frac{1}{2}AB$, draw arcs one on each side of AB

3. With center B and same radius draw arcs cutting previous arcs at P and Q respectively.

4. Join PQ and which intersect AB at C

5. With center A and radius more than $\frac{1}{2}AC$, draw arcs, one on each side of AC.

6. With center C and same radius, draw arcs cutting previous arcs at R and S respectively.

7. Join RS and which intersect AC at D

$\therefore AD = \frac{1}{4}AB.$

7.

Sol:

Steps of construction:

1. Draw a line segment AB

2. With center A and radius more than $\frac{1}{2}AB$, draw arcs one on each side of AB.

3. With center B and same radius draw arcs cutting previous arcs at P and Q respectively.

4. Join PQ and which intersect AB at C

5. With center C and radius more than $\frac{1}{2}CB$, draw arcs, one on each side of CB.

6. With center B and same radius, draw arcs cutting previous arcs at R and S respectively.

7. Join RS and which intersect CB at D

$\therefore AD = \frac{3}{4}AB.$