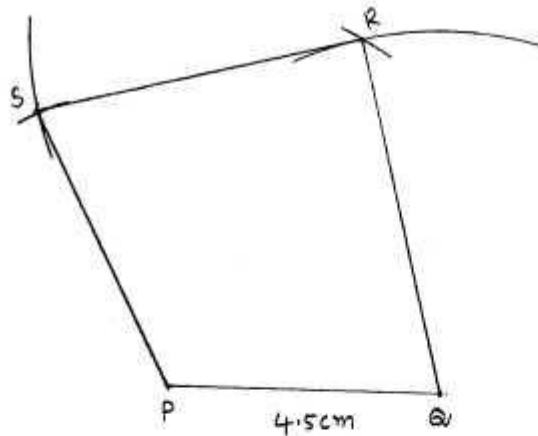


# Constructions of Quadrilaterals

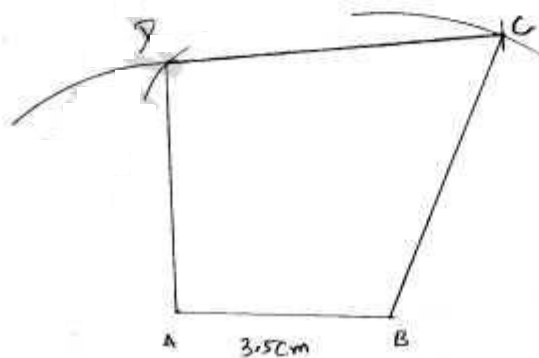
## Exercise 14.1

1.



1. Draw  $PQ = 4.5\text{cm}$
2. From  $Q$  draw arc of length  $6\text{cm}$
3. From  $P$  draw arc of length  $6.5\text{cm}$ , Intersection point is  $R$
4. From  $R$  draw arc of length  $5.5\text{cm}$
5. From  $P$  draw arc of length  $5\text{cm}$ , Intersection point is  $S$ .
6. Draw join  $QR$ ,  $SR$ ,  $PS$ , required quadrilateral  $PQRS$  formed.

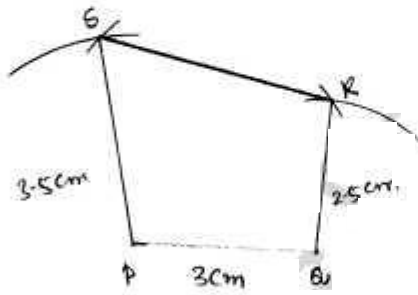
2.



### Steps:

1. Draw  $AB = 3.5\text{cm}$
2. From 'A' draw Arc  $AD = 5\text{cm}$
3. From 'B' draw Arc  $BD = 5.4\text{cm}$ , Intersection point is 'D'
4. From 'B' draw Arc  $BC = 5\text{cm}$ .
5. From 'C' draw Arc  $DC = 5.6\text{cm}$ , Intersection point is 'D'
6. Join  $\overline{AD}$ ,  $\overline{DC}$ ,  $\overline{BC}$ , The required quadrilateral ABCD is formed.

3.

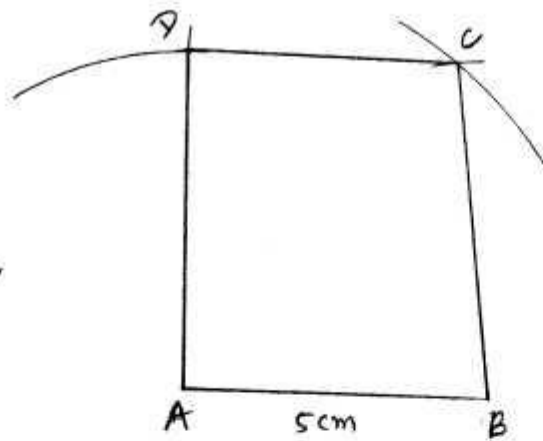


### Steps

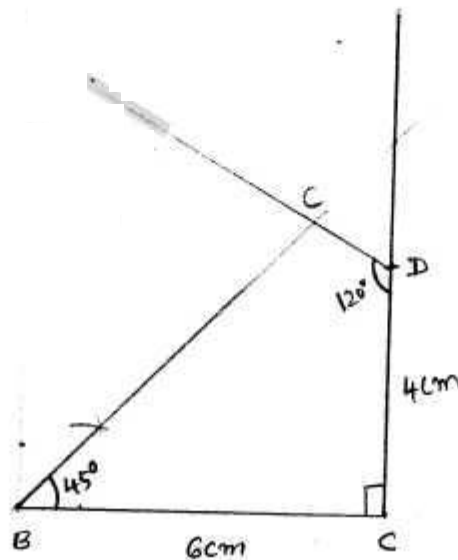
1. Draw  $PQ = 3\text{cm}$  line
2. Draw Arc
3. From Q, Draw Arc  $QR = 2.5\text{cm}$
4. From P, Draw Arc  $PR = 4\text{cm}$ , Intersection point is 'R'
5. From Q, Draw Arc  $QS = 5\text{cm}$
6. From P, Draw Arc  $PS = 3.5\text{cm}$ , Intersection point is 'S'
6. Join  $\overline{QR}$ ,  $\overline{PS}$ ,  $\overline{SR}$ , Now required quadrilateral is formed.

4.

3

Steps

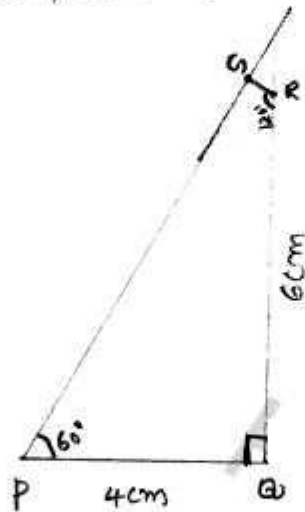
- 1) Draw  $AB = 5\text{cm}$  line
- 2) From 'A' draw Arc  $AC = 7\text{cm}$
- 3) From 'B' draw Arc  $BC = 5.5\text{cm}$ , Intersection point 'C'
- 4) From 'A' draw Arc  $AD = 5.5\text{cm}$
- 5) From 'C' draw Arc  $CD = 4.5\text{cm}$ , Intersection point 'D'
- 6) Join  $\overline{BC}$ ,  $\overline{DC}$ ,  $\overline{AD}$ , Now required quadrilateral ABCD formed.

5.

Steps

- 1) Draw  $BC = 6\text{cm}$  line
- 2) At 'C' Draw  $\angle C = 90^\circ$  line upto  $DC = 4\text{cm}$ . mark point 'D'.
- 3) From 'B' Draw  $\angle B = 45^\circ$  line.
- 4) From 'D' Draw  $\angle D = 120^\circ$  line, Intersection point is 'E'.
- 5) Join  $BC$ ,  $ED$ , Now required quadrilateral ABCD formed.

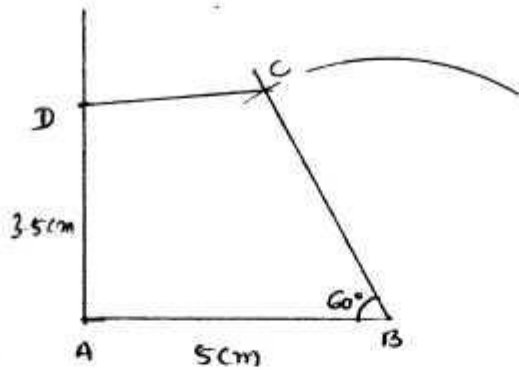
6.

Steps

1. Draw  $PQ = 4\text{cm}$  line
2. Draw  $\angle Q = 90^\circ$  line up  $QR = 6\text{cm}$ . and mark 'R'.
3. Draw  $\angle P = 60^\circ$  line
4. Draw  $\angle R = 120^\circ$  line, Intersection point is 'S'.
5. Join  $PS$ ,  $SR$ , Now required quadrilateral PQRS formed.

7.

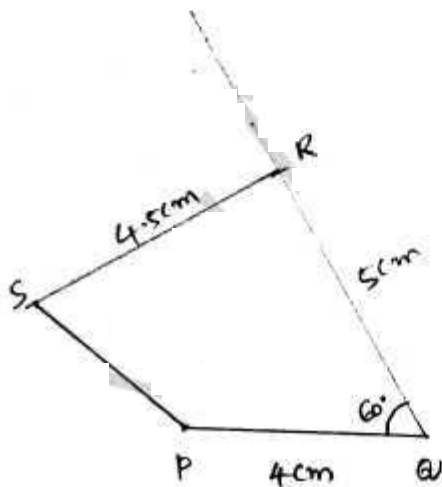
5



Steps

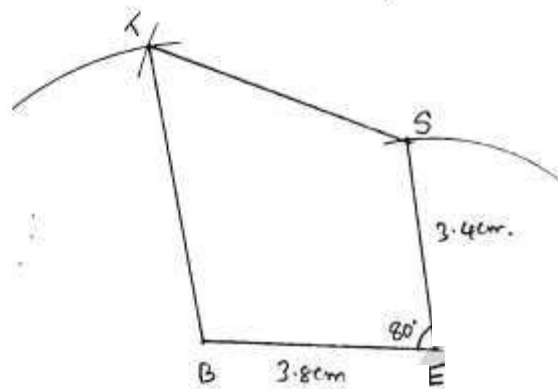
1. Draw  $AB = 5\text{cm}$  line
2. Draw  $\angle B = 60^\circ$  line (show  $B'$ )
3. Draw a cut  $\angle B = 60^\circ$  line with Arc of  $BC = 4.2\text{cm}$ , mark point 'C'
4. At 'A' Draw  $\angle A = 90^\circ$  and at a distance of  $AD = 3.5\text{cm}$ . mark 'D'.
5. Join DC, Now required quadrilateral ABCD is formed.

8.



Steps

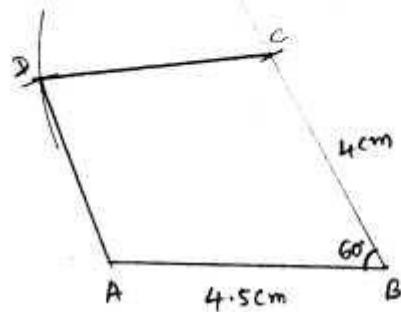
1. Draw  $PA = 4\text{cm}$  line
2. Draw  $\angle A = 60^\circ$  line and at  $Q$  (from  $A$ ), draw arc of  $QR = 5\text{cm}$   
Intersection point is  $R$ .
3. Draw  $\angle R = 90^\circ$  line up to a distance of  $RS = 4.5\text{cm}$  mark  $R$ .
4. Now join  $PS$ . Now required quadrilateral  $PARS$  formed.

9.Steps

1. Draw  $BE = 3.8\text{cm}$  line.
2. Draw  $\angle E = 80^\circ$ , and an arc  $ES = 3.4\text{cm}$  and both cut at a point  $S$ .
3. Draw  $ST = 4.5\text{cm}$  Arc from  $S$ .
4. Draw  $BT = 5\text{cm}$  Arc from  $B$  and intersection point  $T$ .
5. Now join  $\overline{BT}$ ,  $\overline{TS}$ , a required quadrilateral  $BEST$  formed.

10.

7



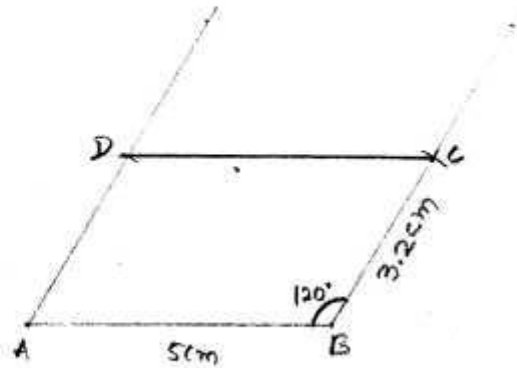
Steps:

1. Draw  $AB = 4.5\text{cm}$  line
2. Draw  $\angle B = 60^\circ$  line from 'B' and draw an arc  $BC = 4\text{cm}$  from 'B'. Intersection point is 'C'
3. Draw arc of  $DC = 3.9\text{cm}$  from 'C'
4. Draw arc  $AD = 3.2\text{cm}$  from 'A', Intersection point 'D'.
5. Join  $\overline{CD}$ ,  $\overline{AD}$ , Now required quadrilateral ABCD formed.

## Exercise 14.2

8

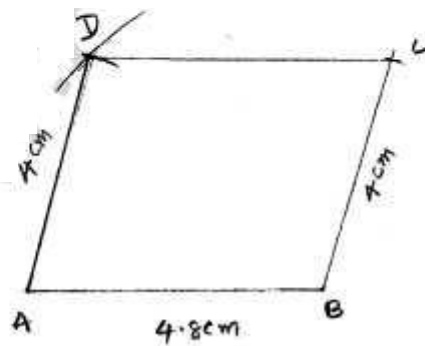
1.



### Steps

1. Draw  $AB = 5\text{cm}$
2. Draw  $\angle B = 120^\circ$  line and cut it at  $BC = 3.2\text{cm}$ , mark point 'C'
3. Draw  $\angle A = (180^\circ - 120^\circ) = 60^\circ$  at cut it at  $AD = 3.2\text{cm}$ , mark point 'D'
4. Now join  $DC$ , Required quadrilateral  $ABCD$  formed.

2.



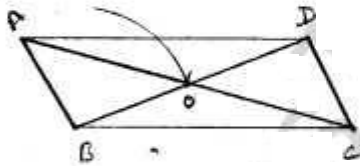


### Steps

9

1. Draw  $AB = 4.8\text{cm}$  line
2. Draw  $BC = 4\text{cm}$  Arc from  $B$
3. Draw  $AD = BC = 4\text{cm}$  Arc from  $A$
4. Draw  $BD = 5.4\text{cm}$  arc from  $B$ , intersection point is  $D'$ .
5. Join  $AD'$  and draw  $BC$  line parallel to  $AD'$ . intersection point is  $E'$ .
6. Join  $BC$ ,  $BE'$ , now required quadrilateral is formed.

3.

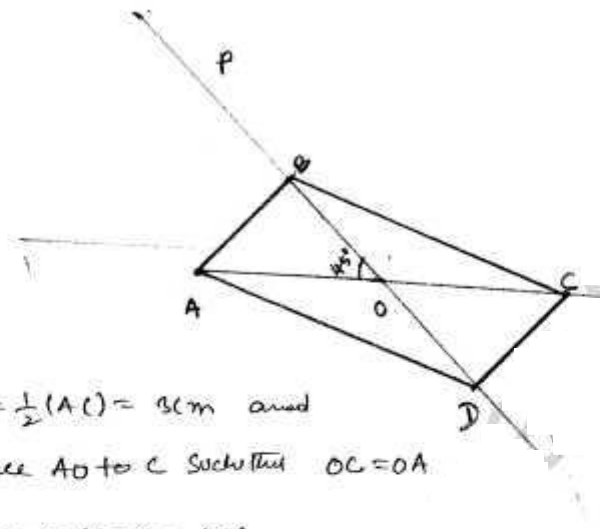


### Steps

1. Draw  $BC = 4.5\text{cm}$   
 $BO = \frac{1}{2}(BD) = \frac{1}{2}(4) = 2\text{cm}$   
 $CO = \frac{1}{2}(AC) = \frac{1}{2}(5.6) = 2.8\text{cm}$   
 $O$  is formed.
2. Extend  $BO$  such that  $BD = 4\text{cm}$
3. Extend  $CO$  such that  $AC = 5.6\text{cm}$
4. Now required parallelogram  $ABCD$  is formed.

4.

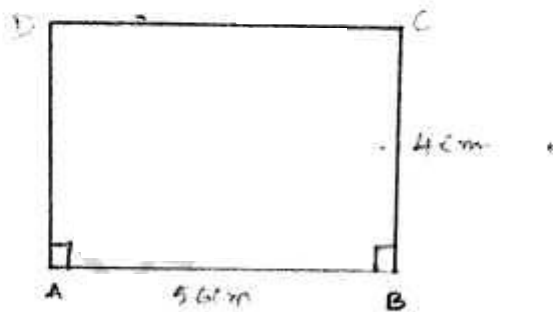
10



Steps

1. Draw  $AO = \frac{1}{2}(AC) = 3\text{cm}$  and  
Produce AO to C such that  $OC = OA$
2. At O, Construct  $\angle AOB = 45^\circ$
3. From O, Cut  $OB = 2.5\text{cm}$ . Produce OB to D such that  $OB = OD$ .
4. Join  $AD, AB, DC, CD$ , ABCD parallelogram formed.

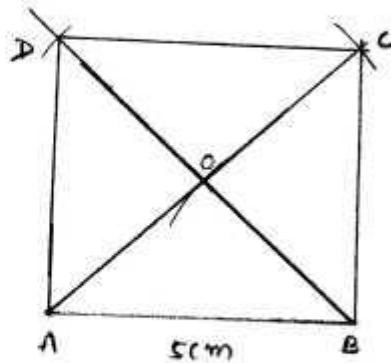
5.



Steps

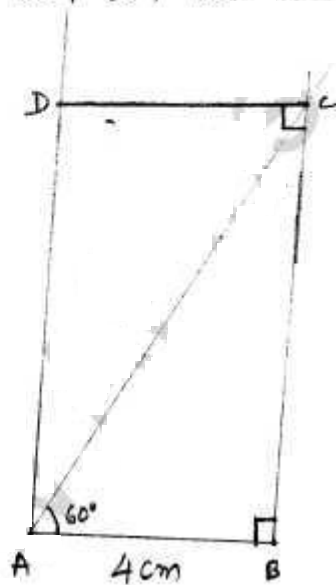
1. Draw  $AB = 5.6\text{cm}$
2. Draw  $\angle B = 90^\circ$  &  $BC = 4\text{cm}$
3. Draw  $\angle A = 90^\circ$  &  $AD = BC = 4\text{cm}$ .
4. Join DC, now rectangle ABCD is formed.

6.



1. Draw  $AB = 5\text{cm}$ .  
Draw  $AD = BC = 3.4\text{cm}$
2. Extend  $AO$  to  $C$  such that  $AC = 6.8\text{cm}$   
Extend  $BO$  to  $D$  such that  $BD = 6.8\text{cm}$
3. Join  $\overline{AD}$ ,  $\overline{DC}$ ,  $\overline{BC}$ , now rectangle  $ABCD$  is formed.

7.

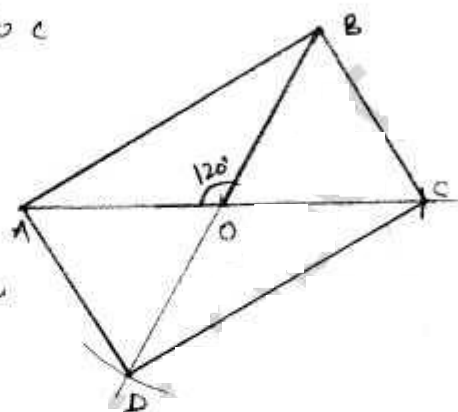


1. Draw  $AB = 4\text{cm}$
2. Draw  $\angle BAC = 90^\circ$  &  $\angle B = 90^\circ$ ,
3. Join  $\overline{BC}$ ,  $\overline{AD}$ , required rectangle  $ABCD$  is formed.

8.

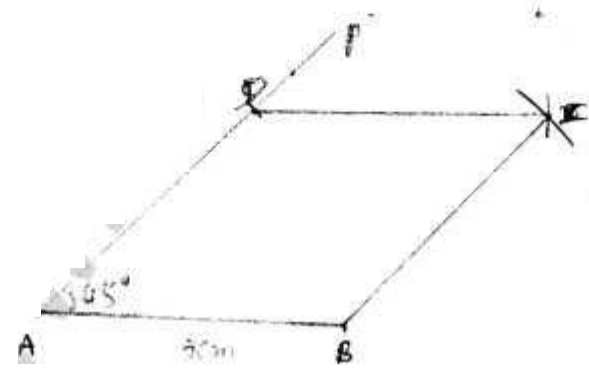
Steps:

1.  $AO = 3.3\text{cm}$  extend to  $e$
2. Such that  $AO = OB$
2.  $\angle AOB = 120^\circ$  and  
Draw  $BO = 3.3\text{cm}$   
and extend to  $D$  such that  
 $BO = OD$



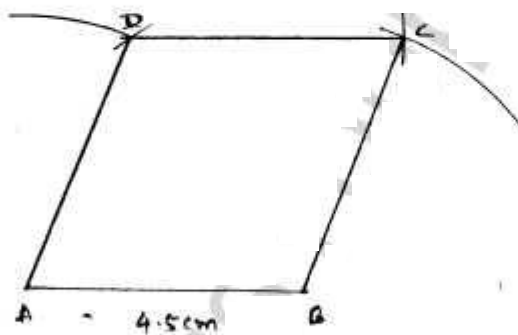
3. Join  $\overline{AB}$ ,  $\overline{BC}$ ,  $\overline{CD}$ ,  $\overline{AD}$ , now required rectangle  $ABCD$  is formed.

9.

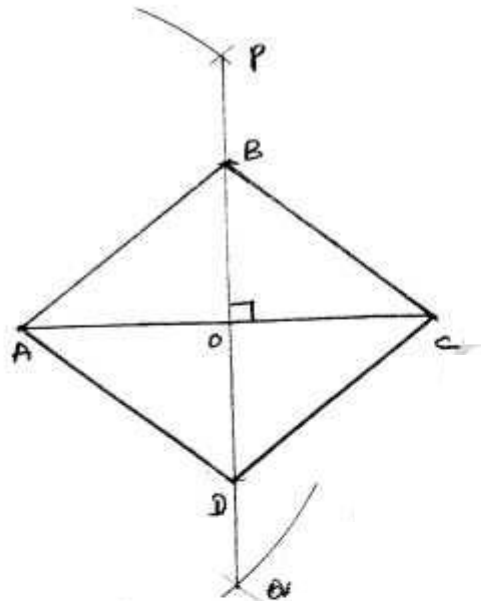


Steps

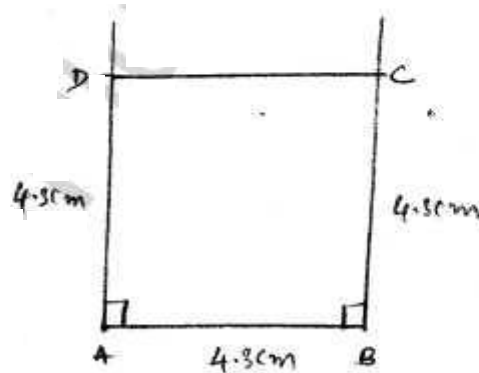
1. Draw  $AB = 5\text{cm}$
2. At  $A$ , construct  $\angle BAP = 45^\circ$
3. From  $AP$ , cut off  $AD = 5\text{cm}$
4. With  $B$  as centre and radius  $5\text{cm}$  draw an arc
5. With  $D$  as centre and radius  $5\text{cm}$  draw an arc which meets previous arc at  $C$
6. Join  $BC$  and  $CD$ . Then  $ABCD$  is a required rhombus.

10.

1. Draw  $AB = 4.5\text{cm}$
2.  $A$  as centre, with  $4.5\text{cm}$  radius draw an arc
3.  $B$  as centre, with  $5\text{cm}$  radius draw an arc which meets previous arc at  $D$ .
4. With  $D$  as centre with  $4.5\text{cm}$  radius draw an arc. They meet at  $C$ .
5. Join  $AD$ ,  $DC$ ,  $BC$ , then  $ABCD$  is required rhombus.

Steps

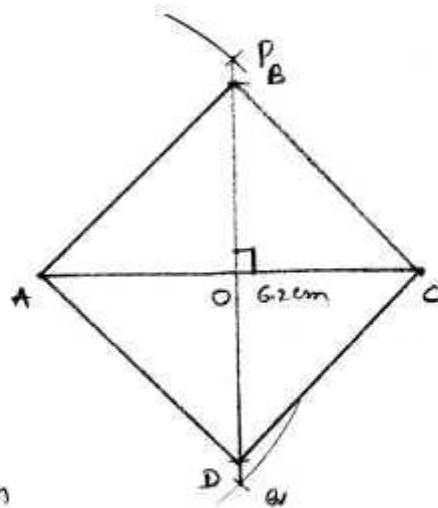
1. Draw  $AC = 6.8\text{cm}$
2. Draw  $PO$ , which is perpendicular bisector of  $AC$
3. Cut  $PO$  such that  $OB = OD = 2.6\text{cm}$
4. Join  $AB, BC, CD, AD$ , now  $ABCD$  is required rhombus.

12.Steps

1. Draw  $AB = 4.3\text{cm}$
2.  $\angle A = 90^\circ$ ,  $A$  as centre,  $4.3\text{cm}$  radius draw an arc, both meet at  $D$
3. Repeat the same at  $B$ ,  $C$  is formed
4. Join  $AD, DC, BC$ , now  $ABCD$  is required square.

13.

15



Steps

1. Draw  $AC = 6.2\text{cm}$
2. Draw  $PO$ , which is perpendicular bisector of  $AC$
3. Cut  $PO$ , from 'O' both sides such that  $OB = OD = 3.1\text{cm}$ .  
 $B, D$  are formed.
4. join  $AB, BC, CD, AD$ , then  $ABCD$  is required square.