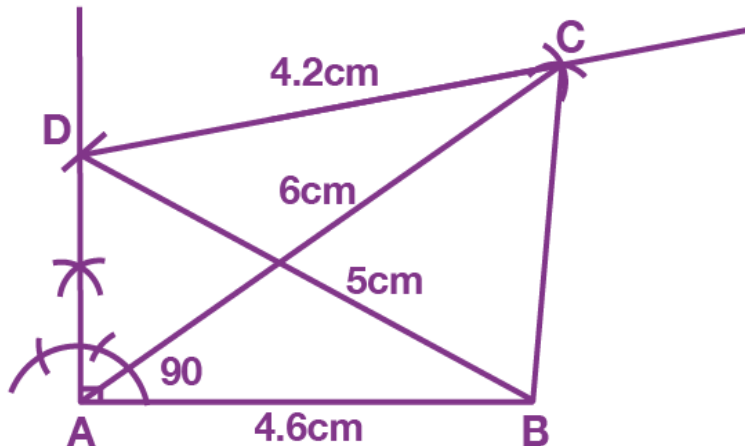


1. Construct a quadrilateral ABCD in which

- (i) $AB = 4.6$ cm, $BD = 5$ cm, $AC = 6$ cm, $CD = 4.2$ cm and $\angle A = 90^\circ$**
- (ii) $AB = 7.2$ cm, $BC = 5.8$ cm, $CD = 6.3$ cm, $AD = 4.3$ cm and $\angle A = 75^\circ$**
- (iii) $AB = 4.8$ cm, $AC = 5.8$ cm, $AD = 3.6$ cm, $\angle A = 105^\circ$ and $\angle B = 60^\circ$**
- (iv) $AD = AB = 5$ cm, $BC = 3.8$ cm, $CD = 3.5$ cm and $\angle BAD = 45^\circ$**

Solution:

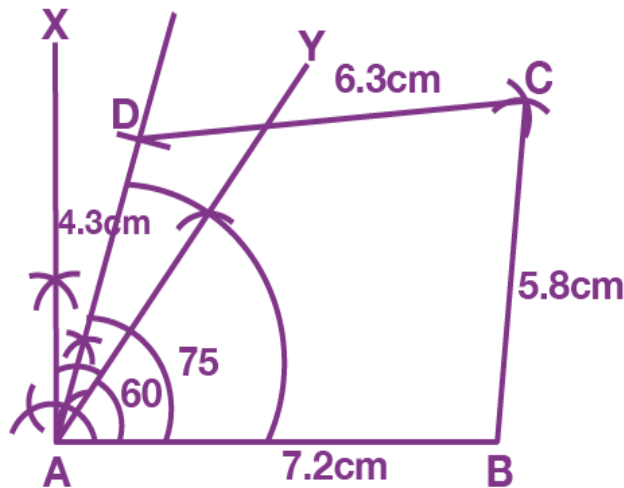
- (i) $AB = 4.6$ cm, $BD = 5$ cm, $AC = 6$ cm, $CD = 4.2$ cm and $\angle A = 90^\circ$**



Steps of Construction:

1. Draw a line segment $AB = 4.6$ cm
2. Taking A as centre, draw a ray making an angle of 90° with AB
3. With B as centre and radius equal to 5 cm cut an arc on the ray from A and mark it as point D
4. With D as centre and radius 4.2 cm cut an arc on right side of AD
5. Taking A as centre and radius 6 cm cut an arc which meets the arc from D at point C
6. Now, join BC
7. ABCD is the required quadrilateral

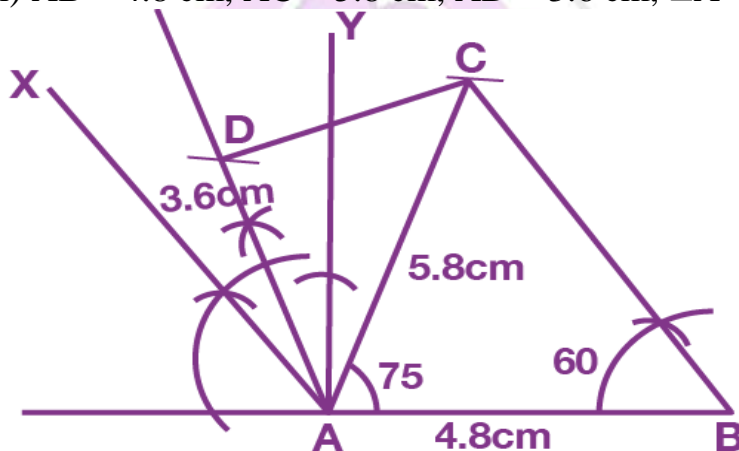
- (ii) $AB = 7.2$ cm, $BC = 5.8$ cm, $CD = 6.3$ cm, $AD = 4.3$ cm and $\angle A = 75^\circ$**



Steps of Construction:

1. Draw a line segment $AB = 7.2$ cm
2. With A as centre draw rays X and Y to make angles 90° and 60° with AB. Then bisect the angle between them to make an angle of 75° with AB
3. With A as centre and radius 4.3 cm cut an arc on line segment making 75° angle with AB and mark it as point D
4. With D and B as centres and radii of 6.3 and 5.8 cm respectively, draw arcs cutting each other at point C
5. Now, join DC and BC
6. ABCD is the required quadrilateral

(iii) $AB = 4.8$ cm, $AC = 5.8$ cm, $AD = 3.6$ cm, $\angle A = 105^\circ$ and $\angle B = 60^\circ$



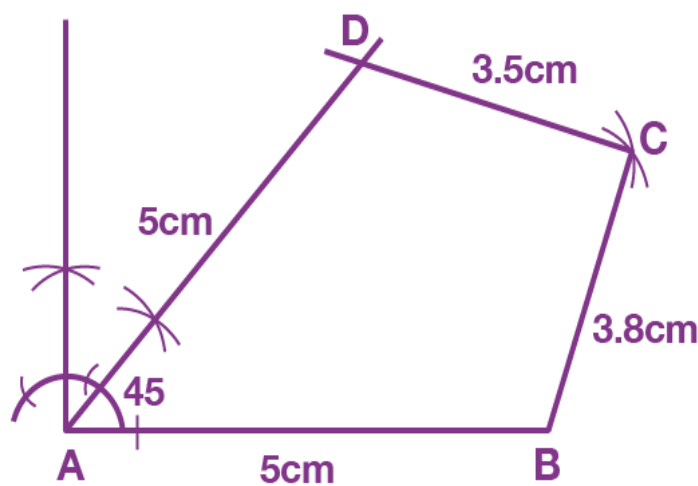
Steps of Construction:

1. Draw a line segment $AB = 4.8$ cm
2. With A as centre draw rays X and Y to make angles 60° and 90° with AB produced. Then bisect the angle between them to make an angle of 105° with AB
3. With A as centre and radius 3.6 cm cut an arc on line segment making 105° angle with

AB and name it as point D

4. With B as centre draw a ray making an angle of 60° with AB
5. With A as centre and radius 5.8 cm cut an arc on the ray from B and mark the point as C
6. Now, join BC and DC
7. ABCD is the required quadrilateral

(iv) $AD = AB = 5$ cm, $BC = 3.8$ cm, $CD = 3.5$ cm and $\angle BAD = 45^\circ$



Steps of Construction:

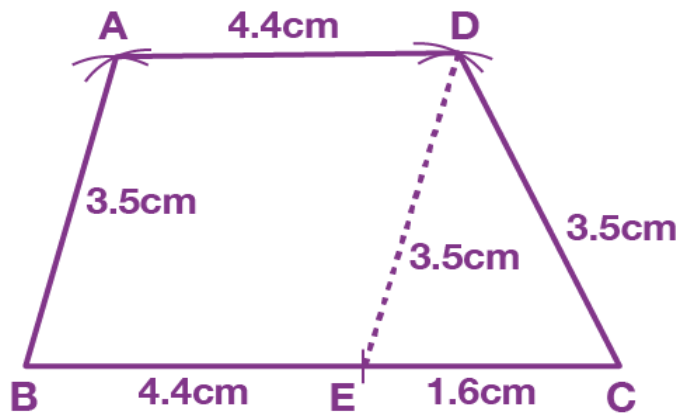
1. Draw a line segment $AB = 5$ cm
2. With A as centre draw an angle of 90° and bisect it to form $\angle BAD = 45^\circ$
3. With A as centre and radius 5 cm cut an arc on the ray making an angle of 45° with AB and name it as point D
4. With D and B as centre and radii as 3.5 cm and 3.8 cm respectively draw arcs intersecting each other at point C
5. Now, join DC and BC
6. ABCD is the required quadrilateral

2. Construct a trapezium ABCD in which

- (i) $AB = 3.5$ cm, $BC = 6$ cm, $CD = 3.5$ cm, $AD = 4.4$ cm and $AD \parallel BC$
- (ii) $AB = 4.6$ cm, $BC = 6.4$ cm, $CD = 5.6$ cm, $\angle B = 60^\circ$ and $AD \parallel BC$

Solution:

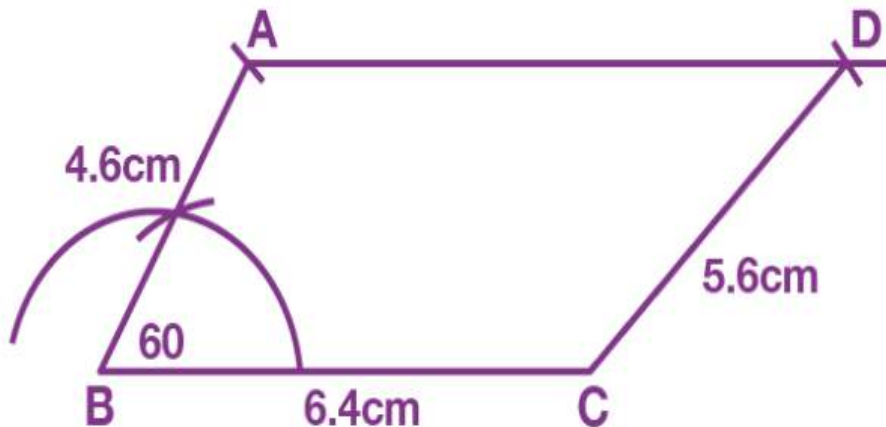
- (i) $AB = 3.5$ cm, $BC = 6$ cm, $CD = 3.5$ cm, $AD = 4.4$ cm and $AD \parallel BC$



Steps of Construction:

1. Draw BC of length 6 cm
2. From BC, cut BE = 4.4 cm
3. Draw a triangle DEC, such that DE = AB = 3.5 cm and CD = 3.5 cm
4. With B and D as centres and radii 3.5 cm and 4.4 cm respectively, draw arcs cutting each other at point A
5. Now, join AB and AD
6. Thus, ABCD is the required trapezium

(ii) AB = 4.6 cm, BC = 6.4 cm, CD = 5.6 cm, $\angle B = 60^\circ$ and AD \parallel BC



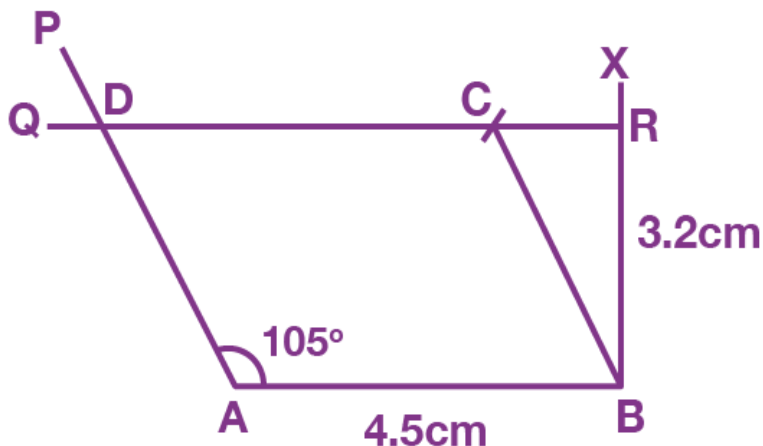
Steps of Construction:

1. Draw BC of length 6.4 cm
2. With B as centre, draw an angle of 60° and cut an arc with radius 4.6 cm. Name this point as A
3. From point A, draw a line segment parallel to BC
4. With C as centre and radius 5.6 cm cut an arc on the line segment parallel to BC. Name this point as D
5. Join CD

6. Thus, ABCD is the required trapezium

3. Construct a parallelogram ABCD in which $AB = 4.5$ cm, $\angle A = 105^\circ$ and the distance between AB and CD is 3.2 cm

Solution:

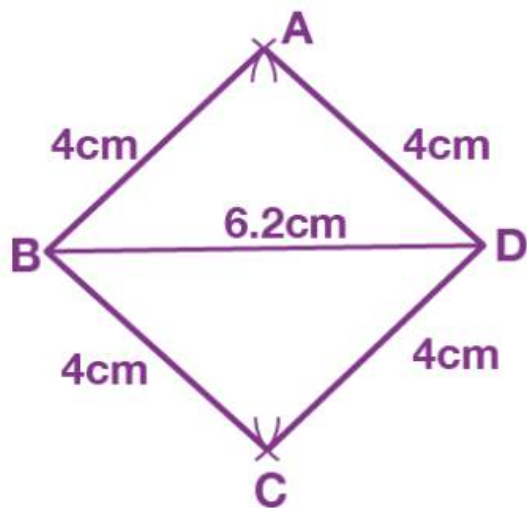


Steps of Construction:

1. Draw a line segment $AB = 4.5$ cm
2. At B, draw BX perpendicular to AB
3. From B, cut $BR = 3.2$ cm on BX which is the distance between AB and CD
4. Through R, draw a line perpendicular to BX to get QR parallel to AB
5. Taking A as centre, draw a ray AP making an angle of 105° with AB and meeting QR at point D
6. Taking B as centre, draw an arc with radius = AD on QR and name it as point C
7. Now, join BC
8. $ABCD$ is the required parallelogram

4. Construct a rhombus whose perimeter is 16 cm and $BD = 6.2$ cm

Solution:



The length of all the sides of rhombus is equal

Therefore,

Perimeter = side \times 4

Side = perimeter / 4

Side = $16 / 4$

We get,

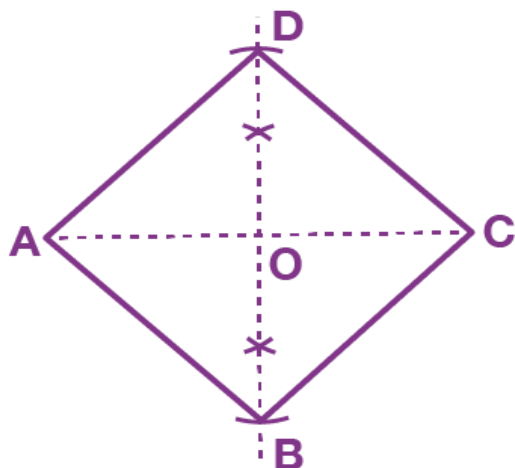
Side = 4 cm

Steps of Construction:

1. Draw a line segment $BD = 6.2$ cm
2. Taking B as centre and radius 4 cm, draw two arcs one above BD and the other below BD
3. Taking D as centre and radius 4 cm draw two arcs one above BD and the other below BD intersecting the previous arcs drawn in step 2 at points A and C respectively
4. Now, join AB, BC, CD and AD
5. ABCD is the required rhombus

5. Construct a rhombus whose diagonals $AC = 7.4$ cm and $BD = 6$ cm

Solution:



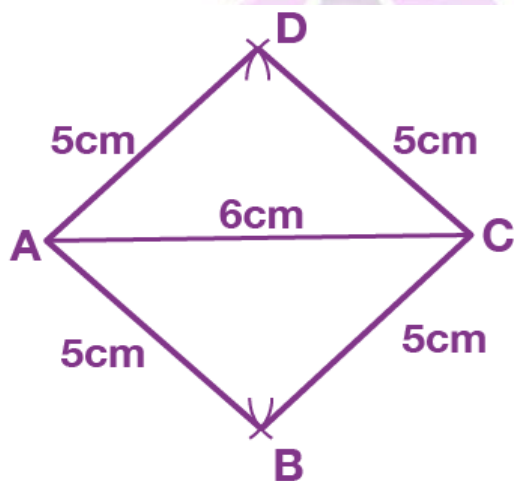
The diagonals of a rhombus bisect each other

Steps of Construction:

1. Draw a line segment $AC = 7.4$ cm
2. Draw perpendicular bisector to AC which cuts AC at point O
3. From this perpendicular cut OD and OB such that $OD = OB = \frac{1}{2} BD = \frac{1}{2} \times 6$ cm = 3 cm
4. Now, join AB , BC , CD and AD
5. $ABCD$ is the required rhombus

6. Construct a rhombus whose side $AB = 5$ cm and diagonal $AC = 6$ cm. Measure DB and AD .

Solution:



In rhombus all sides are equal

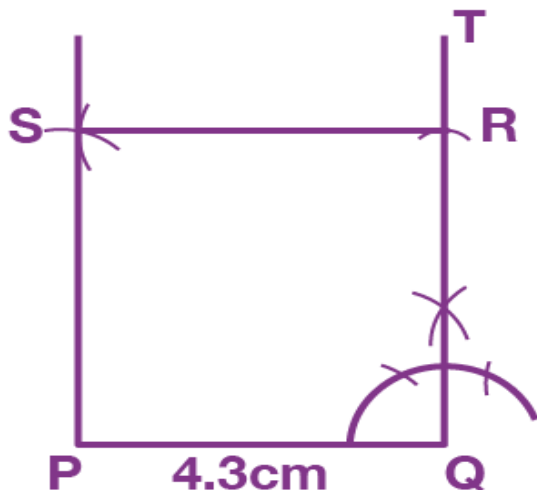
Steps of Construction:

1. Draw AC of length 6 cm
2. With A as centre and radius 5 cm, draw two arcs one above AC and the other below AC

3. Taking C as centre and radius 5 cm draw two arcs one above AC and the other below AC intersecting the previous arcs of Step 2 at points B and D respectively
4. Now, join AB, BC, CD and AD
5. ABCD is the required rhombus
6. On measuring we get, $AD = 5$ cm and $DB = 8$ cm

7. Construct a square with each side 4.3 cm

Solution:



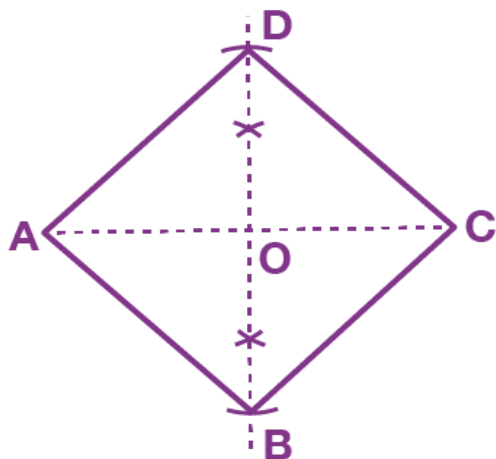
Sides of square are equal

Steps of Construction:

1. Draw PQ of length 4.3 cm
2. Construct $\angle PQT = 90^\circ$ at Q
3. From QT cut off $QR = 4.3$ cm
4. From P and R, draw two arcs of radii 4.3 cm each to cut each other at point S
5. Now, join PS and RS
6. PQRS is the required square

8. Construct a square ABCD with $AC = 6.5$ cm

Solution:



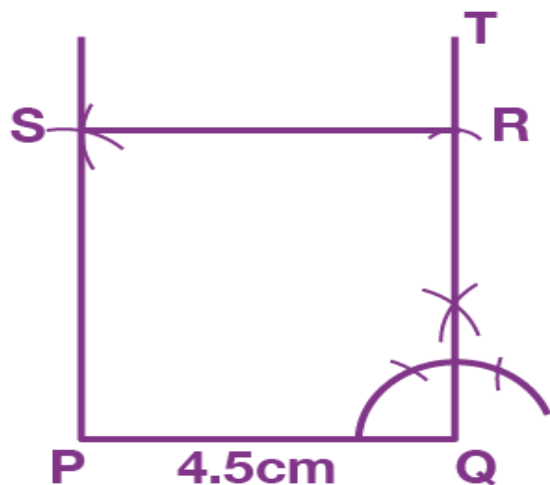
The diagonals of a square are equal and bisect each other

Steps of Construction:

1. Draw AC of length 6.5 cm
2. Draw perpendicular bisector to AC which cuts AC at point O
3. From this perpendicular cut OD and OB such that $OD = OB = \frac{1}{2} BD = \frac{1}{2} \times 6.5 = 3.25$ cm
4. Now, join AB, BC, CD and AD
5. ABCD is the required square

9. Construct a square with perimeter = 18 cm

Solution:



Sides of square are equal

Perimeter = 4 x side

Side = perimeter / 4

Side = $18 / 4$

We get,

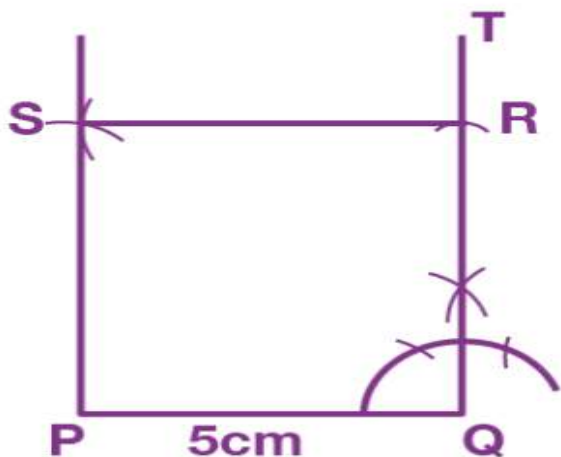
Side = 4.5 cm

Steps of Construction:

1. Draw PQ of length 4.5 cm
2. Construct $\angle PQT = 90^\circ$ at Q
3. From QT cut off QR = 4.5 cm
4. From P and R, draw two arcs of radii 4.5 cm each to cut each other at point S
5. Now, join PS and RS
6. PQRS is the required square

10. Construct a square whose area is 25 sq. cm.

Solution:

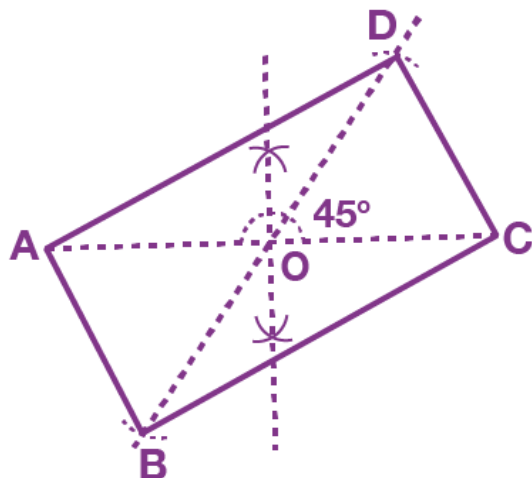


Steps of Construction:

1. Draw PQ of length 5 cm
2. Construct $\angle PQT = 90^\circ$ at Q
3. From QT cut off QR = 5 cm
4. From P and R, draw two arcs of radii 5 cm each to cut each other at point S
5. Now, join PS and RS
6. PQRS is the required square

11. Construct a rectangle ABCD with one diagonal AC = 5.8 cm and the acute angle between the diagonals is equal to 45°

Solution:



Steps of Construction:

1. Draw AC of length 5.8 cm and locate its midpoint O
2. Draw line BOD such that $\angle DOC = 45^\circ$ and $OB = OD = \frac{1}{2} BD = \frac{1}{2} \times 5.8 \text{ cm} = 2.9 \text{ cm}$
3. Now, join AB, BC, CD and DA
4. Thus ABCD is the required rectangle

12. Construct a rectangle ABCD with perimeter 18 cm and AB = 6 cm

Solution:

Opposite sides of a rectangle are equal

Hence,

$$AB = CD \text{ and } BC = DA$$

$$\text{Perimeter of rectangle} = AB + BC + CD + DA$$

$$18 \text{ cm} = AB + BC + AB + BC$$

$$18 \text{ cm} = 6 + BC + 6 + BC$$

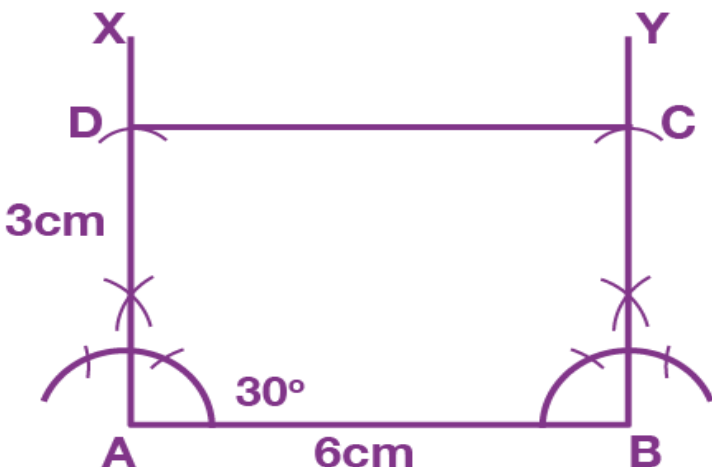
$$(18 - 12) \text{ cm} = 2BC$$

We get,

$$BC = 3 \text{ cm}$$

Hence,

$$AB = CD = 6 \text{ cm and } BC = DA = 3 \text{ cm}$$

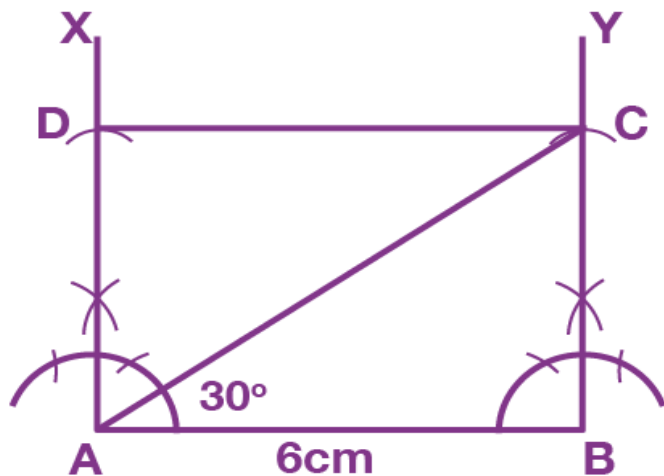


Steps of Construction:

1. Draw $AB = 6\text{ cm}$
2. On A and B draw perpendiculars AX and BY to AB
3. Taking A and B as centres and radii 3 cm draw arcs on AX and BY. Mark them as points D and C respectively
4. Now, join CD
5. Therefore, ABCD is the required rectangle

13. Construct a rectangle ABCD, $AB = 6\text{ cm}$, $\angle CAB = 30^\circ$

Solution:



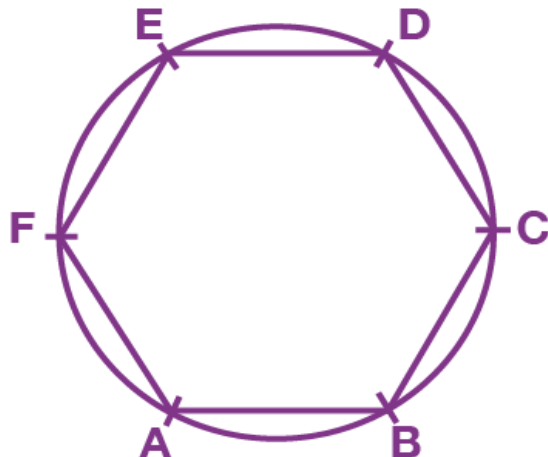
Steps of Construction:

1. Draw $AB = 6\text{ cm}$
2. On A and B draw perpendiculars AX and BY to AB
3. Taking A as centre, draw a line making an angle of 30° with AB and intersecting BY at point C
4. With A as centre and radius = BC cut an arc on AX. Name it as point D
5. Join CD

6. Hence, ABCD is the required rectangle

14. Construct a regular hexagon of side 3.5 cm

Solution:

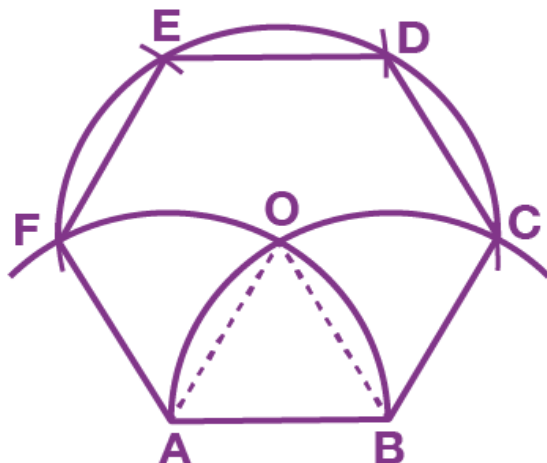


Steps of Construction:

1. Draw a circle with radius of length 3.5 cm
2. Take a point A on the circle. With A as centre and radius 3.5 cm cut the circle at B and from B with radius 3.5 cm cut the circle at C and so on
3. Now, join AB, BC, CD, DE, EF and AF
4. Therefore, ABCDEF is the required regular hexagon

15. Construct a regular hexagon of side 4 cm

Solution:



Steps of Construction:

1. Draw AB of length 4 cm
2. With centres A and B and radius 4 cm draw arcs to cut each other at O
3. Taking O as centre and the radius 4 cm cut the arc drawn in step 2 at C and F. Now,

join AF and BC

4. With centres C and F and radius 4 cm cut the arcs drawn in step 3 at D and E. Then join CD, DE and EF

5. Thus ABCDEF is the required regular hexagon

