

EXERCISE 18.4

PAGE NO: 18.10

1. Construct a quadrilateral ABCD in which $AB = 6\text{ cm}$, $BC = 4\text{ cm}$, $CD = 4\text{ cm}$, $\angle B = 95^\circ$ and $\angle C = 90^\circ$.

Solution:

The given details are $AB = 6\text{ cm}$, $BC = 4\text{ cm}$, $CD = 4\text{ cm}$, $\angle B = 95^\circ$ and $\angle C = 90^\circ$.

Steps to construct a quadrilateral:

Step 1- Draw a line $BC = 4\text{ cm}$

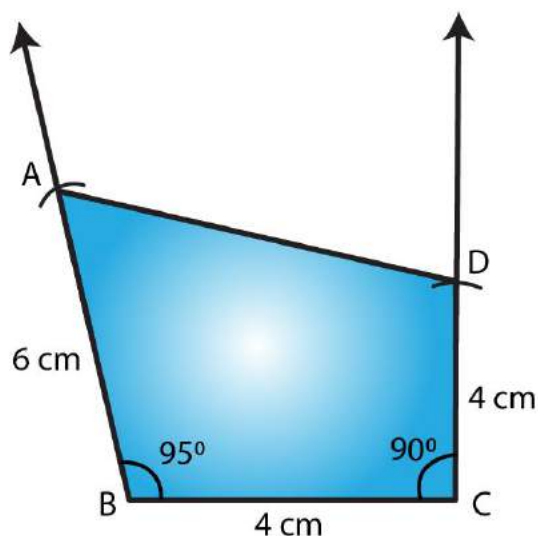
Step 2- Construct an angle of 95° at B.

Step 3- Cut an arc of radius 6 cm with B as the centre to mark that point as A.

Step 4- Construct an angle of 90° at C.

Step 5- Cut an arc of radius 4 cm with C as the centre to mark that point as D.

Step 6- Now join BA, CD and AD



2. Construct a quadrilateral ABCD where $AB = 4.2\text{ cm}$, $BC = 3.6\text{ cm}$, $CD = 4.8\text{ cm}$, $\angle B = 30^\circ$ and $\angle C = 150^\circ$.

Solution:

The given details are $AB = 4.2\text{ cm}$, $BC = 3.6\text{ cm}$, $CD = 4.8\text{ cm}$, $\angle B = 30^\circ$ and $\angle C = 150^\circ$.

Steps to construct a quadrilateral:

Step 1- Draw a line $BC = 3.6\text{ cm}$

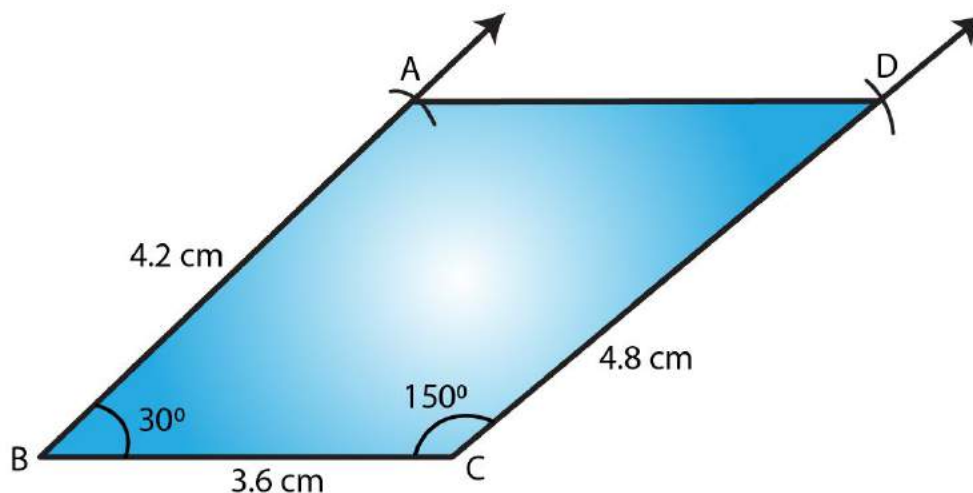
Step 2- Construct an angle of 30° at B.

Step 3- Cut an arc of radius 4.2 cm with B as the centre to mark that point as A.

Step 4- Construct an angle of 150° at C.

Step 5- Cut an arc of radius 4.8cm with C as the centre to mark that point as D.

Step 6- Now join BA, CD and AD



3. Construct a quadrilateral PQRS in which $PQ = 3.5$ cm, $QR = 2.5$ cm, $RS = 4.1$ cm, $\angle Q = 75^\circ$ and $\angle R = 120^\circ$.

Solution:

The given details are $PQ = 3.5$ cm, $QR = 2.5$ cm, $RS = 4.1$ cm, $\angle Q = 75^\circ$ and $\angle R = 120^\circ$.

Steps to construct a quadrilateral:

Step 1- Draw a line $QR = 2.5$ cm

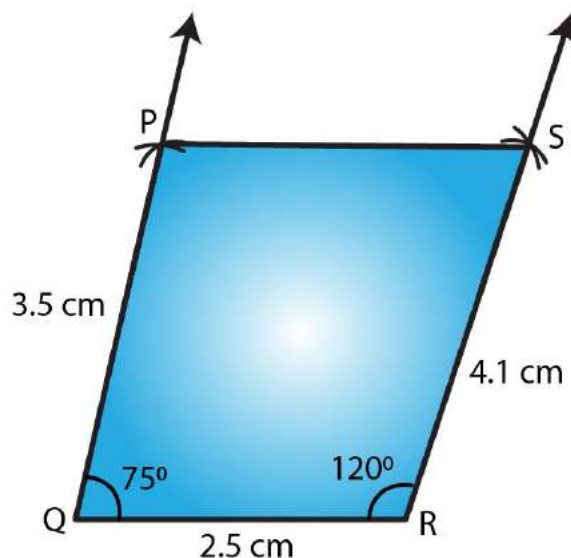
Step 2- Construct an angle of 75° at Q.

Step 3- Cut an arc of radius 3.5cm with Q as the centre to mark that point as P.

Step 4- Construct an angle of 120° at R.

Step 5- Cut an arc of radius 4.1cm with R as the centre to mark that point as S.

Step 6- Now join QP, RS and PS



4. Construct a quadrilateral ABCD given $BC = 6.6$ cm, $CD = 4.4$ cm, $AD = 5.6$ cm $\angle D = 100^\circ$ and $\angle C = 95^\circ$

Solution:

The given details are $BC = 6.6$ cm, $CD = 4.4$ cm, $AD = 5.6$ cm $\angle D = 100^\circ$ and $\angle C = 95^\circ$

Steps to construct a quadrilateral:

Step 1- Draw a line $DC = 4.4$ cm

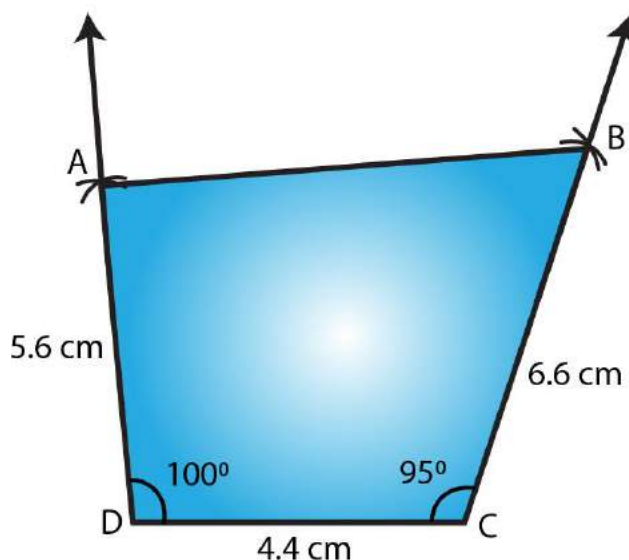
Step 2- Construct an angle of 100° at D.

Step 3- Cut an arc of radius 5.6cm with D as the centre to mark that point as A.

Step 4- Construct an angle of 95° at C.

Step 5- Cut an arc of radius 6.6cm with C as the centre to mark that point as B.

Step 6- Now join DA, CB and AB



5. Construct a quadrilateral ABCD in which $AD = 3.5$ cm, $AB = 4.4$ cm, $BC = 4.7$ cm, $\angle A = 125^\circ$ and $\angle B = 120^\circ$.

Solution:

The given details are $AD = 3.5$ cm, $AB = 4.4$ cm, $BC = 4.7$ cm, $\angle A = 125^\circ$ and $\angle B = 120^\circ$.

Steps to construct a quadrilateral:

Step 1- Draw a line $AB = 4.4$ cm

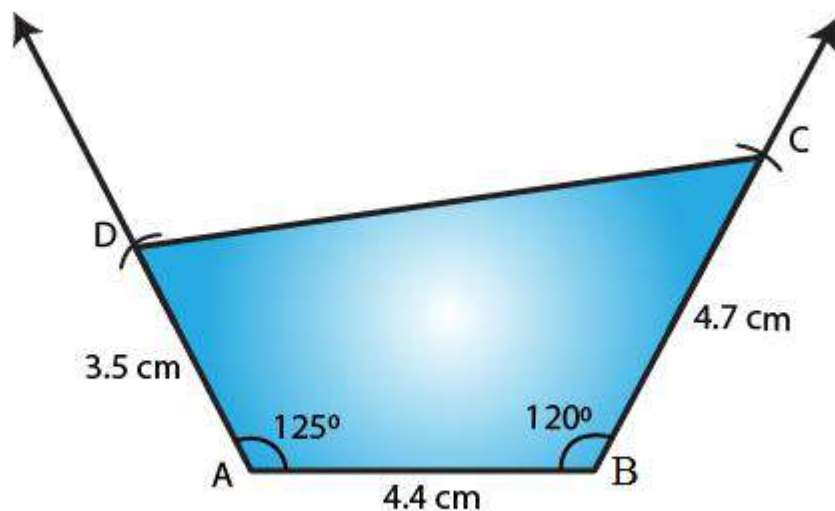
Step 2- Construct an angle of 125° at A.

Step 3- Cut an arc of radius 3.5cm with A as the centre to mark that point as D.

Step 4- Construct an angle of 120° at B.

Step 5- Cut an arc of radius 4.7cm with B as the centre to mark that point as C.

Step 6- Now join AD, BC and CD.



6. Construct a quadrilateral PQRS in which $\angle Q = 45^\circ$ and $\angle R = 90^\circ$, $QR = 5$ cm, $PQ = 9$ cm and $RS = 7$ cm.

Solution:

The given details are $\angle Q = 45^\circ$ and $\angle R = 90^\circ$, $QR = 5$ cm, $PQ = 9$ cm and $RS = 7$ cm.

Steps to construct a quadrilateral:

Step 1- Draw a line $QR = 5$ cm

Step 2- Construct an angle of 45° at Q.

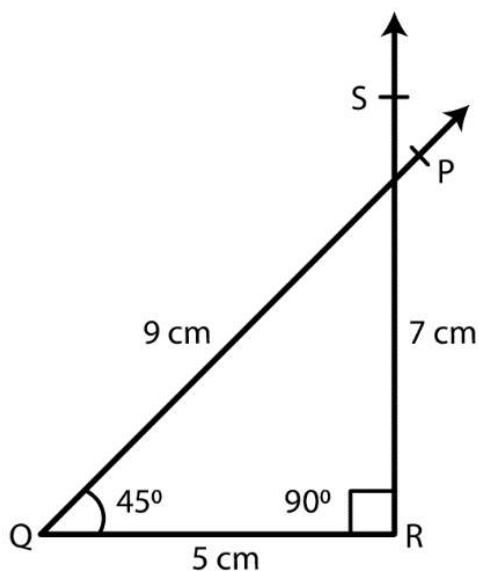
Step 3- Cut an arc of radius 9 cm with Q as the centre to mark that point as P.

Step 4- Construct an angle of 90° at R.

Step 5- Cut an arc of radius 7 cm with R as the centre to mark that point as S.

Step 6- Now join QP, RS.

Since the line segment QP and RS are not intersecting at each other, quadrilateral cannot be formed.



7. Construct a quadrilateral ABCD in which $AB = BC = 3$ cm, $AD = 5$ cm, $\angle A = 90^\circ$ and $\angle B = 105^\circ$.

Solution:

The given details are $AB = BC = 3$ cm, $AD = 5$ cm, $\angle A = 90^\circ$ and $\angle B = 105^\circ$.

Steps to construct a quadrilateral:

Step 1- Draw a line $AB = 3$ cm

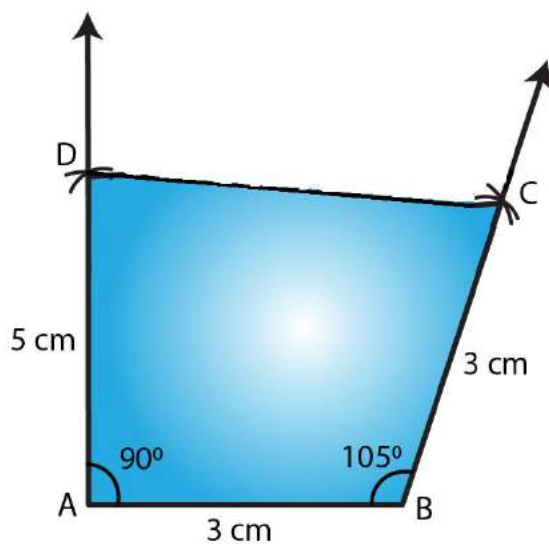
Step 2- Construct an angle of 90° at A.

Step 3- Cut an arc of radius 5cm with A as the centre to mark that point as D.

Step 4- Construct an angle of 105° at B.

Step 5- Cut an arc of radius 3cm with B as the centre to mark that point as C.

Step 6- Now join AD, BC and CD



8. Construct a quadrilateral BDEF, where $DE = 4.5$ cm, $EF = 3.5$ cm, $FB = 6.5$ cm, $\angle F = 50^\circ$ and $\angle E = 100^\circ$.

Solution:

The given details are $DE = 4.5$ cm, $EF = 3.5$ cm, $FB = 6.5$ cm, $\angle F = 50^\circ$ and $\angle E = 100^\circ$.

Steps to construct a quadrilateral:

Step 1- Draw a line $EF = 3.5$ cm

Step 2- Construct an angle of 100° at E.

Step 3- Cut an arc of radius 4.5cm with E as the centre to mark that point as D.

Step 4- Construct an angle of 50° at F.

Step 5- Cut an arc of radius 6.5cm with F as the centre to mark that point as B.

Step 6- Now join DE, FB and DB

