

Access answers to Maths RD Sharma Solutions For Class 8 Chapter 18 Practical Geometry (Constructions)

EXERCISE 18.1 PAGE NO: 18.4

1. Construct a quadrilateral ABCD in which AB = 4.4 cm, BC = 4 cm, CD = 6.4 cm, DA = 3.8 cm and BD = 6.6 cm.

Solution:

The given details are AB = 4.4 cm, BC = 4 cm, CD = 6.4 cm, DA = 3.8 cm and BD = 6.6 cm.

Divide the quadrilateral into two triangles i.e., $\triangle ABD$ and $\triangle BCD$

Steps to construct a quadrilateral:

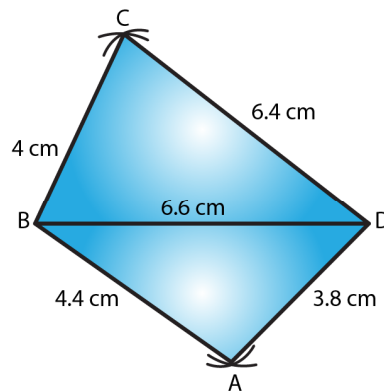
Step 1- By using SSS congruency rule, Draw line BD of length 6.6 cm.

Step 2- Cut an arc with B as the centre and radius BC = 4cm. Do the same by taking D as centre and radius CD = 6.4 cm.

Step 3- Now join the intersection point from B and D and label it as C.

Step 4- Now for vertex A, cut an arc by taking B as the center and radius BA = 4.4cm. Do the same by taking D as center and radius DA = 3.8cm.

Step 5- Join the intersection point from B and D and label it as A.



2. Construct a quadrilateral ABCD in which AB = BC = 5.5 cm, CD = 4 cm, DA = 6.3 cm, AC = 9.4 cm Measure BD.

Solution:

The given details are AB = BC = 5.5 cm, CD = 4 cm, DA = 6.3 cm, AC = 9.4 cm Measure BD.

Steps to construct a quadrilateral:

Step 1- Draw a line segment AB = 5.5cm

Step 2- With B as center and radius BC = 5.5cm cut an arc. Mark that point as C.

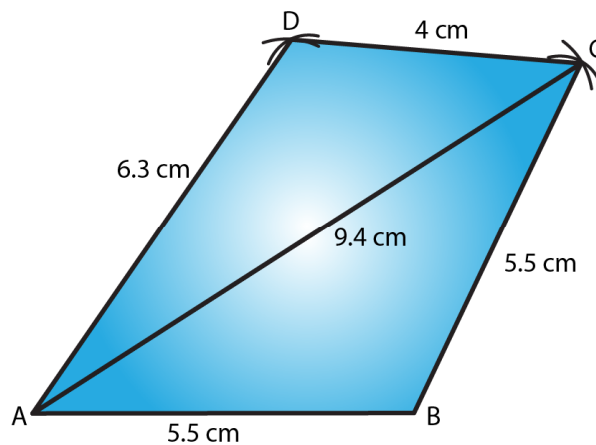
Step 3- With A as center and radius AC = 9.4cm cut an arc to intersect at point C.

Step 4- With C as center and radius CD = 4cm cut an arc. Mark that point as D.

Step 5- With A as center and radius AD = 6.3cm cut an arc to intersect at point D.

Step 6- Now join BC, CD and AD

Measure of BD is 5.1cm.



3. Construct a quadrilateral XYZW in which $XY = 5$ cm, $YZ = 6$ cm, $ZW = 7$ cm, $WX = 3$ cm and $XZ = 9$ cm.

Solution:

The given details are $XY = 5$ cm, $YZ = 6$ cm, $ZW = 7$ cm, $WX = 3$ cm and $XZ = 9$ cm.

Steps to construct a quadrilateral:

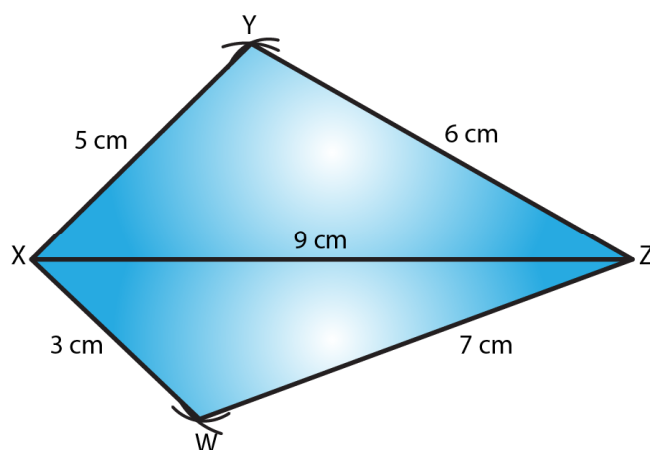
Step 1- Draw line XZ of length 9cm.

Step 2- Cut an arc by taking X as the centre radius $XY = 5$ cm. Do the same by taking Z as centre and radius $ZY = 6$ cm.

Step 3- Now join the intersection point from X and Z and label it as Y .

Step 4- For vertex W , cut an arc by taking X as the center and radius $XW = 3$ cm. Similarly, taking Z as the center and radius $ZW = 7$ cm.

Step 5- Join the intersection point from X and Z and label it as W .



4. Construct a parallelogram PQRS such that PQ = 5.2 cm, PR = 6.8 cm, and QS = 8.2 cm.

Solution:

The given details are PQ = 5.2 cm, PR = 6.8 cm, and QS = 8.2 cm.

Steps to construct a parallelogram:

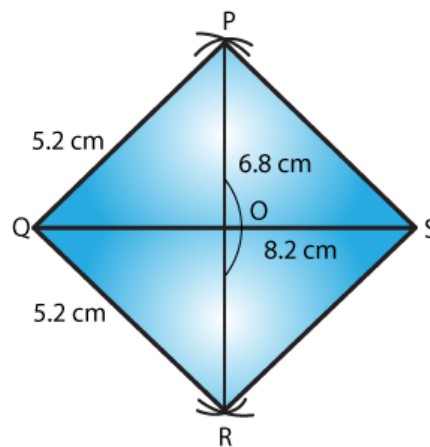
Step 1- Draw line QS of length 8.2 cm.

Step 2- Divide the line segment QS into half i.e 4.1 cm and mark that point as O. Now by taking O as center cut an arc on both the sides of O with a radius of 3.4cm each. And mark that points as P and R.

Step 3- cut an arc by taking Q as a center and radius QR = 5.2cm to intersect with point R.

Step 4- cut an arc by taking Q as a center and radius QP = 5.2cm to intersect with point P.

Step 5- Join sides PQ, PS, QR and RS.



5. Construct a rhombus with side 6 cm and one diagonal 8 cm. Measure the other diagonal.

Solution:

The given details are side 6 cm and one diagonal 8 cm.

We know all the sides of a rhombus are equal and diagonals bisect each other.

Steps to construct a rhombus:

Step 1- Draw a line XZ of length 8 cm.

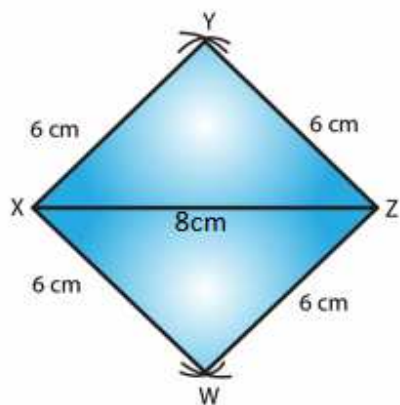
Step 2- By taking a radius of 6 cm, cut an arc by taking X as the center. Do the same by taking Z as centre with radius of 6 cm.

Step 3- Now join the intersection point from X and Z and label it as Y.

Step 4- Now for vertex W, by taking radius of 6 cm and cut an arc by taking X as the center. Do the same by taking Z as center and radius of 6 cm.

Step 5- Join the intersection point from X and Z and label it as W.

Step 6- Now join XY, XW, XZ and ZY



6. Construct a kite ABCD in which $AB = 4$ cm, $BC = 4.9$ cm, $AC = 7.2$ cm.

Solution:

The given details are $AB = 4$ cm, $BC = 4.9$ cm, $AC = 7.2$ cm.

Steps to construct a kite:

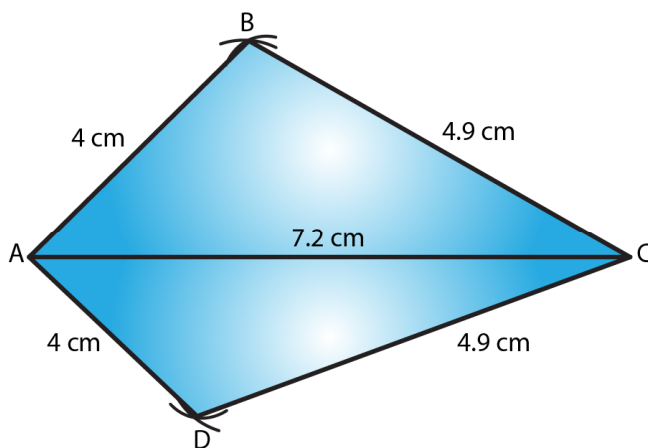
Step 1- Draw line AC of length 7.2 cm.

Step 2- By taking a radius of 4 cm and cut an arc by taking A as the center. Do the same by taking C as centre with radius of 4.9 cm.

Step 3- Now join the intersection point from A and C and label it as B.

Step 4- Now for vertex D, cut an arc by taking A as the center. Do the same by taking C as center with radius of 4.9 cm.

Step 5- Join the intersection point from A and C and label it as D.



7. Construct, if possible, a quadrilateral ABCD given $AB = 6$ cm, $BC = 3.7$ cm, $CD = 5.7$ cm, $AD = 5.5$ cm and $BD = 6.1$ cm. Give reasons for not being able to construct it, if you cannot.

Solution:

The given details are $AB = 6\text{ cm}$, $BC = 3.7\text{ cm}$, $CD = 5.7\text{ cm}$, $AD = 5.5\text{ cm}$ and $BD = 6.1\text{ cm}$.

Steps to construct a quadrilateral:

Step 1- Draw a line AB of length 6 cm .

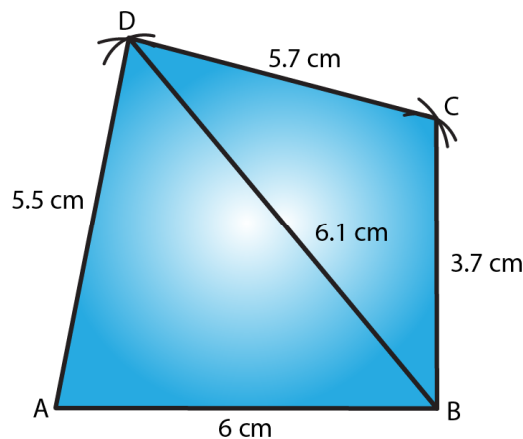
Step 2- With A as a center cut an arc of radius 5.5 cm and mark that point as D .

Step 3- With B as a center cut an arc of radius 6.1 cm to intersect with point D .

Step 4- With B as a center cut an arc of radius 3.7 cm and mark that point as C .

Step 5- With D as a center cut an arc of radius 5.7 cm to intersect with point C .

Step 6- Now join AD , BD , BC and DC



8. Construct, if possible, a quadrilateral $ABCD$ in which $AB = 6\text{ cm}$, $BC = 7\text{ cm}$, $CD = 3\text{ cm}$, $AD = 5.5\text{ cm}$ and $AC = 11\text{ cm}$. Give reasons for not being able to construct, if you cannot. (Not possible, because in triangle ACD , $AD + CD < AC$).

Solution:

The given details are $AB = 6\text{ cm}$, $BC = 7\text{ cm}$, $CD = 3\text{ cm}$, $AD = 5.5\text{ cm}$ and $AC = 11\text{ cm}$.

Such a Quadrilateral cannot be constructed because, in a triangle, the sum of the length of its two sides must be greater than that of the third side.

In triangle ACD ,

$$AD + CD = 5.5 + 3 = 8.5\text{ cm}$$

$$\text{Given, } AC = 11\text{ cm}$$

So, $AD + CD < AC$ which is not possible.

\therefore The construction is not possible

EXERCISE 18.2 PAGE NO: 18.6

1. Construct a quadrilateral $ABCD$ in which $AB = 3.8\text{ cm}$, $BC = 3.0\text{ cm}$, $AD = 2.3\text{ cm}$, $AC = 4.5\text{ cm}$ and $BD = 3.8\text{ cm}$.

Solution:

The given details are $AB = 3.8$ cm, $BC = 3.0$ cm, $AD = 2.3$ cm, $AC = 4.5$ cm and $BD = 3.8$ cm.

Steps to construct a quadrilateral:

Step 1- Draw a line $AC = 6$ cm.

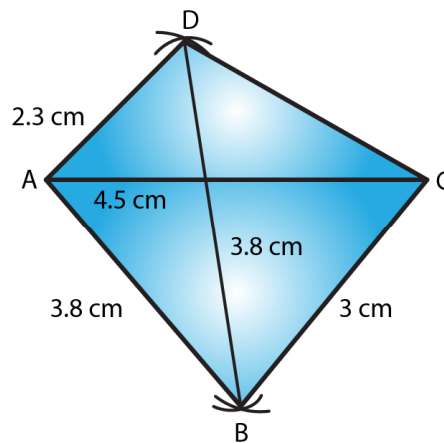
Step 2- Cut an arc of radius 3.8cm with A as the center to mark that point as B.

Step 3- Cut an arc of radius 3cm with C as the center to intersect with point B.

Step 4- Cut an arc of radius 3.8cm with B as the center to mark that point as D.

Step 5- Cut an arc of radius 2.3cm with A as the center to intersect with point D.

Step 6- Now join AB, BD, AD and DC



2. Construct a quadrilateral ABCD in which $BC = 7.5$ cm, $AC = AD = 6$ cm, $CD = 5$ cm and $BD = 10$ cm.

Solution:

The given details are $BC = 7.5$ cm, $AC = AD = 6$ cm, $CD = 5$ cm and $BD = 10$ cm.

Steps to construct a quadrilateral:

Step 1- Draw a line $AC = 6$ cm.

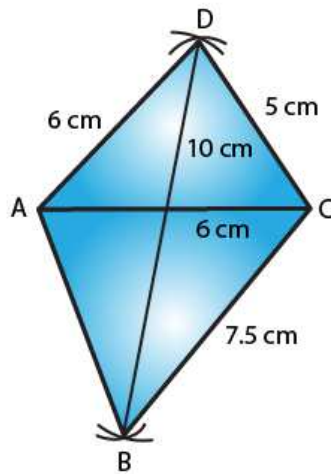
Step 2- Cut an arc of radius 6cm with A as the center to mark that point as D.

Step 3- Cut an arc of radius 5cm with C as the center to intersect at point D.

Step 4- Cut an arc of radius 10cm with D as the center to mark that point as B.

Step 5- Cut an arc of radius 7.5cm with C as the center to intersect at point B.

Step 6- Now join AD, CD, DB and AB



3. Construct a quadrilateral ABCD when $AB = 3$ cm, $CD = 3$ cm, $DA = 7.5$ cm, $AC = 8$ cm and $BD = 4$ cm.

Solution:

The given details are $AB = 3$ cm, $CD = 3$ cm, $DA = 7.5$ cm, $AC = 8$ cm and $BD = 4$ cm.

Consider a triangle ABD from the given data,

So, $AB + BD = 3 + 4 = 7$ cm

We know that sum of lengths of two sides of a triangle is always greater than the third side.

\therefore The construction is not possible.

4. Construct a quadrilateral ABCD given $AD = 3.5$ cm, $BC = 2.5$ cm, $CD = 4.1$ cm, $AC = 7.3$ cm and $BD = 3.2$ cm.

Solution:

The given details are $AD = 3.5$ cm, $BC = 2.5$ cm, $CD = 4.1$ cm, $AC = 7.3$ cm and $BD = 3.2$ cm.

Steps to construct a quadrilateral:

Step 1- Draw a line $CD = 4.1$ cm

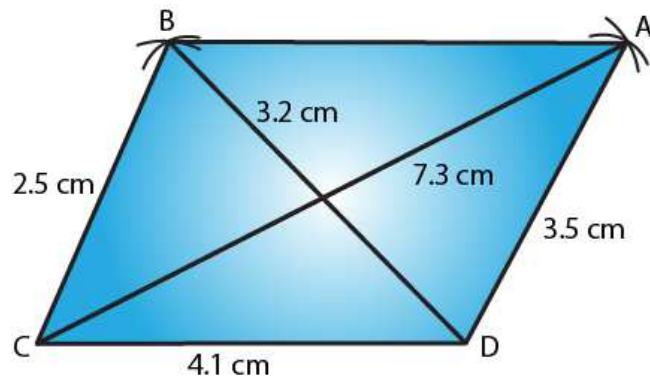
Step 2- Cut an arc of radius 7.3 cm with C as the center to mark that point as A.

Step 3- Cut an arc of radius 3.5 cm with D as the center to intersect at point A.

Step 4- Cut an arc of radius 3.2 cm with D as the center to mark that point as B.

Step 5- Cut an arc of radius 2.5 cm with C as the center to intersect at point B.

Step 6- Now join CA, DA, DB, CB and AB



5. Construct a quadrilateral ABCD given $AD = 5$ cm, $AB = 5.5$ cm, $BC = 2.5$ cm, $AC = 7.1$ cm and $BD = 8$ cm.

Solution:

The given details are $AD = 5$ cm, $AB = 5.5$ cm, $BC = 2.5$ cm, $AC = 7.1$ cm and $BD = 8$ cm.

Steps to construct a quadrilateral:

Step 1- Draw a line $AB = 5.5$ cm

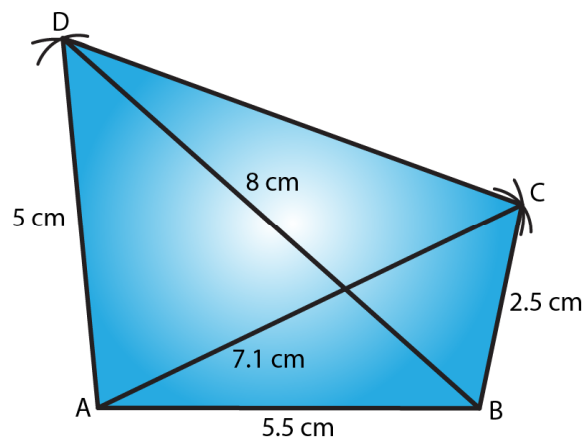
Step 2- Cut an arc of radius 2.5cm with B as the center to mark that point as C.

Step 3- Cut an arc of radius 7.1cm with A as the center to intersect at point C.

Step 4- Cut an arc of radius 8cm with B as the center to mark that point as D.

Step 5- Cut an arc of radius 5cm with A as the center to intersect at point D.

Step 6- Now join BC, AC, BD, AD and CD



6. Construct a quadrilateral ABCD in which $BC = 4\text{ cm}$, $CA = 5.6\text{ cm}$, $AD = 4.5\text{ cm}$, $CD = 5\text{ cm}$ and $BD = 6.5\text{ cm}$.

Solution:

The given details are $BC = 4\text{ cm}$, $CA = 5.6\text{ cm}$, $AD = 4.5\text{ cm}$, $CD = 5\text{ cm}$ and $BD = 6.5\text{ cm}$.

Steps to construct a quadrilateral:

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

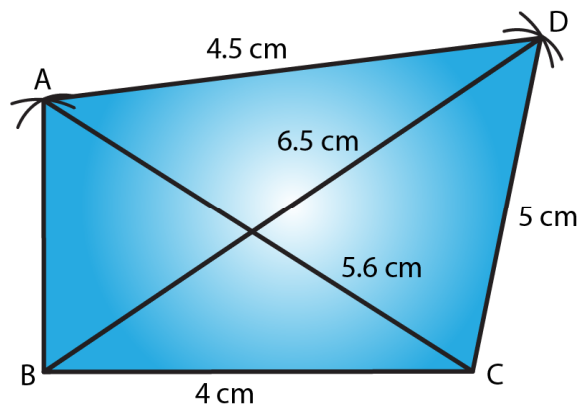
Step 2- Cut an arc of radius 6.5 cm with B as the center to mark that point as D.

Step 3- Cut an arc of radius 5 cm with C as the center to intersect at point D.

Step 4- Cut an arc of radius 5.6 cm with C as the center to mark that point as A.

Step 5- Cut an arc of radius 4.5 cm with D as the center to intersect at point A.

Step 6- Now join BD, CD, CA, DA and AB



EXERCISE 18.3 PAGE NO: 18.8

1. Construct a quadrilateral ABCD in which $AB = 3.8\text{ cm}$, $BC = 3.4\text{ cm}$, $CD = 4.5\text{ cm}$, $AD = 5\text{ cm}$ and $\angle B = 80^\circ$.

Solution:

The given details are $AB = 3.8\text{ cm}$, $BC = 3.4\text{ cm}$, $CD = 4.5\text{ cm}$, $AD = 5\text{ cm}$ and $\angle B = 80^\circ$.

Steps to construct a quadrilateral:

Step 1- Draw a line $AB = 3.8\text{ cm}$

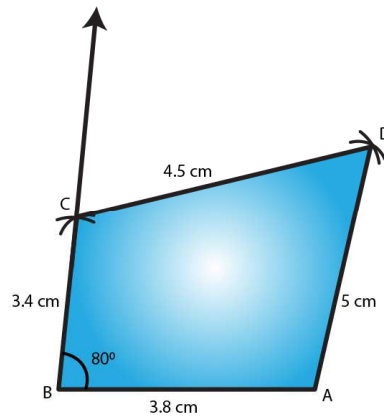
Step 2- Construct an angle of 80° at B.

Step 3- Cut an arc of radius 3.4 cm with B as the center to mark that point as C.

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

Step 5- Cut an arc of radius 4.5 cm with C as the center to intersect at point D.

Step 6- Now join BC, AD and CD



2. Construct a quadrilateral ABCD given that AB = 8 cm, BC = 8 cm, CD = 10 cm, AD = 10 cm and $\angle A = 45^\circ$.

Solution:

The given details are AB = 8 cm, BC = 8 cm, CD = 10 cm, AD = 10 cm and $\angle A = 45^\circ$.

Steps to construct a quadrilateral:

Step 1- Draw a line AB = 8cm

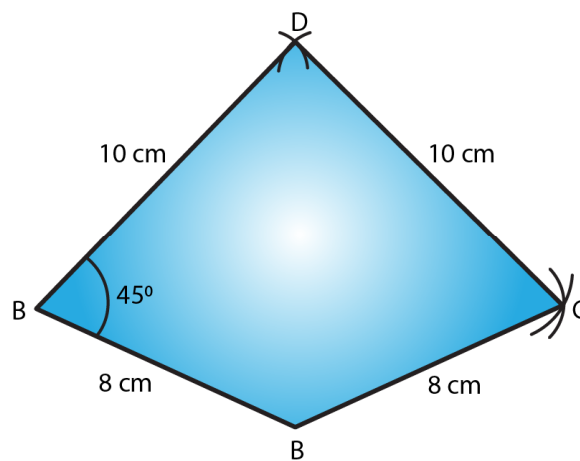
Step 2- Construct an angle of 45° at A.

Step 3- Cut an arc of radius 10cm with A as the center to mark that point as D.

Step 4- Cut an arc of radius 10cm with D as the center to mark that point as C.

Step 5- Cut an arc of radius 8cm with B as the center to intersect at point C.

Step 6- Now join AD, DC and BC



3. Construct a quadrilateral ABCD in which $AB = 7.7$ cm, $BC = 6.8$ cm, $CD = 5.1$ cm, $AD = 3.6$ cm and $\angle C = 120^\circ$.

Solution:

The given details are $AB = 7.7$ cm, $BC = 6.8$ cm, $CD = 5.1$ cm, $AD = 3.6$ cm and $\angle C = 120^\circ$.

Steps to construct a quadrilateral:

Step 1- Draw a line $DC = 5.1$ cm

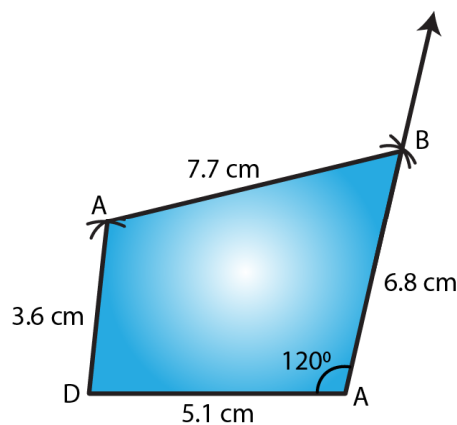
Step 2- Construct an angle of 120° at C.

Step 3- Cut an arc of radius 6.8cm with C as the center to mark that point as B.

Step 4- Cut an arc of radius 7.7cm with B as the center to mark that point as A.

Step 5- Cut an arc of radius 3.6cm with D as the center to intersect at point A.

Step 6- Now join CB, BA and DA



4. Construct a quadrilateral ABCD in which $AB = BC = 3$ cm, $AD = CD = 5$ cm and $\angle B = 120^\circ$.

Solution:

The given details are $AB = BC = 3$ cm, $AD = CD = 5$ cm and $\angle B = 120^\circ$.

Steps to construct a quadrilateral:

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

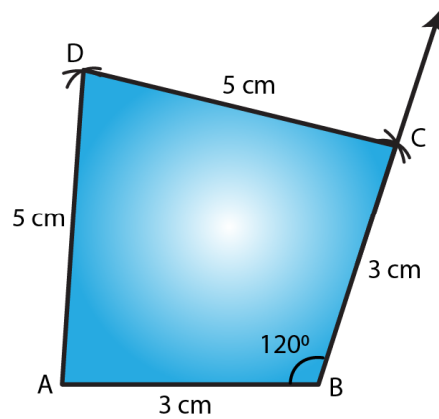
Step 2- Construct an angle of 120° at B.

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

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

Step 5- Cut an arc of radius 5cm with A as the center to intersect at point D.

Step 6- Now join BC, CD and DA



5. Construct a quadrilateral ABCD in which AB = 2.8 cm, BC = 3.1 cm, CD = 2.6 cm and DA = 3.3 cm and $\angle A = 60^\circ$.

Solution:

The given details are AB = 2.8 cm, BC = 3.1 cm, CD = 2.6 cm and DA = 3.3 cm and $\angle A = 60^\circ$.

Steps to construct a quadrilateral:

Step 1- Draw a line AB = 2.8cm

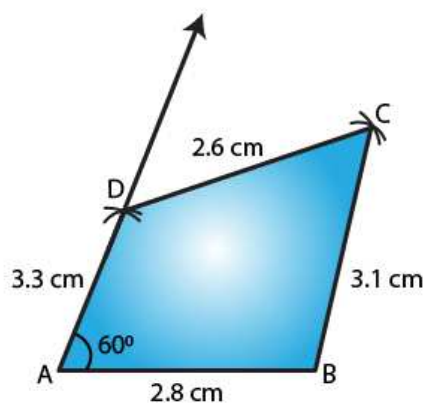
Step 2- Construct an angle of 60° at A.

Step 3- Cut an arc of radius 3.3cm with A as the center to mark that point as D.

Step 4- Cut an arc of radius 2.6cm with D as the center to mark that point as C.

Step 5- Cut an arc of radius 3.1cm with B as the center to intersect at point C.

Step 6- Now join AD, DC and CB



6. Construct a quadrilateral ABCD in which $AB = BC = 6$ cm, $AD = DC = 4.5$ cm and $\angle B = 120^\circ$.

Solution:

The given details are $AB = BC = 6$ cm, $AD = DC = 4.5$ cm and $\angle B = 120^\circ$.

Steps to construct a quadrilateral:

Step 1- Draw a line $AB = 6$ cm

Step 2- Construct an angle of 120° at B.

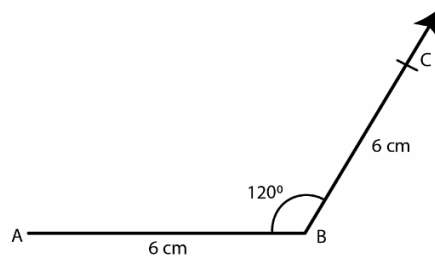
Step 3- Cut an arc of radius 6 cm with B as the center to mark that point as C.

Here, AC is about 10.3 cm in length which is greater than $AD + CD = 4.5 + 4.5 = 9$ cm

We know that sum of the two sides of a triangle is always greater than the third side.

$$AD + CD < AC$$

\therefore Construction is not possible.



EXERCISE 18.4 PAGE NO: 18.10

1. Construct a quadrilateral ABCD in which $AB = 6$ cm, $BC = 4$ cm, $CD = 4$ cm, $\angle B = 95^\circ$ and $\angle C = 150^\circ$.

Solution:

The given details are $AB = 6$ cm, $BC = 4$ cm, $CD = 4$ cm, $\angle B = 95^\circ$ and $\angle C = 150^\circ$.

Steps to construct a quadrilateral:

Step 1- Draw a line $BC = 4$ cm

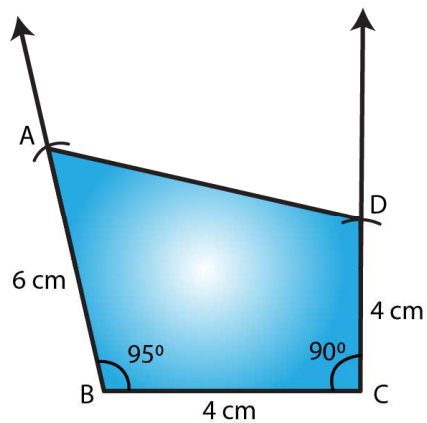
Step 2- Construct an angle of 95° at B.

Step 3- Cut an arc of radius 6 cm with B as the center 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 center 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 $BC = 3.6\text{ cm}$

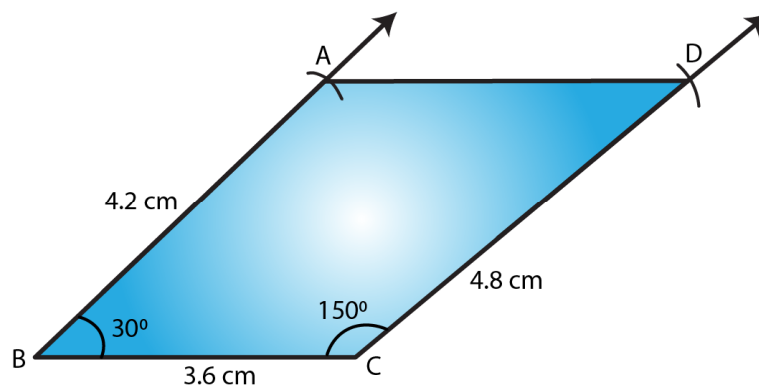
Step 2- Construct an angle of 30° at B.

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

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

Step 5- Cut an arc of radius 4.8 cm with C as the center 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

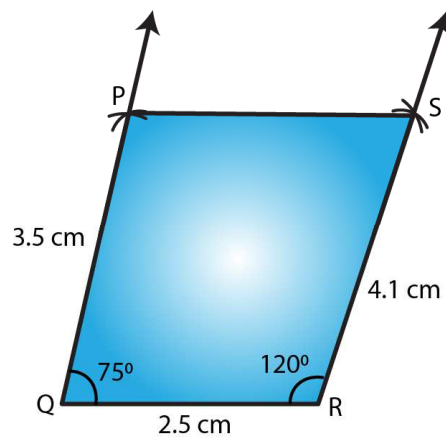
Step 2- Construct an angle of 75° at Q.

Step 3- Cut an arc of radius 3.5cm with Q as the center 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 center 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

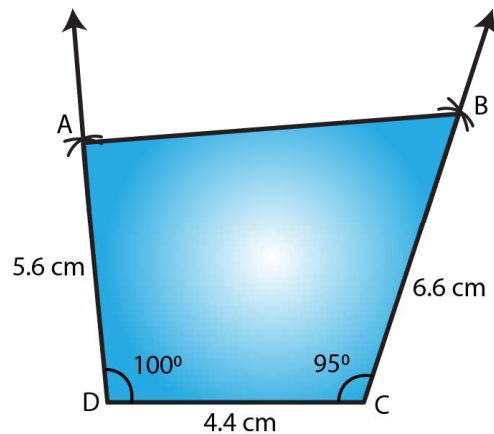
Step 2- Construct an angle of 100° at D.

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

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

Step 5- Cut an arc of radius 6.6cm with C as the center 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 = 4.4cm

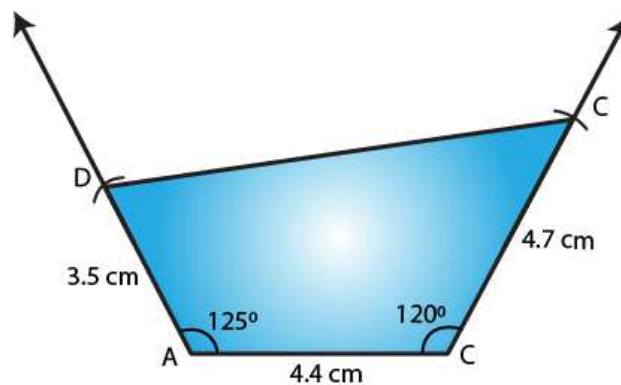
Step 2- Construct an angle of 125° at A.

Step 3- Cut an arc of radius 3.5cm with A as the center 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 center 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.

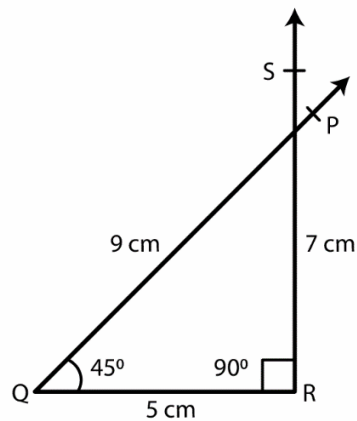
Step 3- Cut an arc of radius 9 cm with Q as the center to mark that point as P.

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

Step 5- Cut an arc of radius 7 cm with R as the center 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

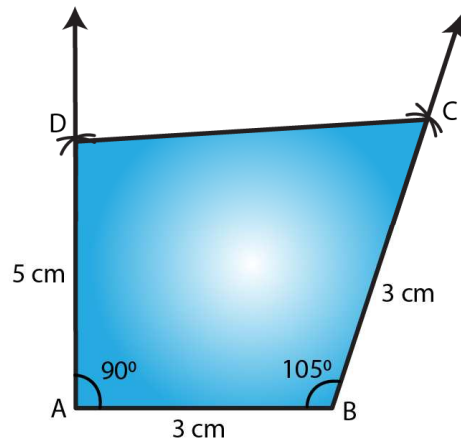
Step 2- Construct an angle of 90° at A.

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

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

Step 5- Cut an arc of radius 3 cm with B as the center 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

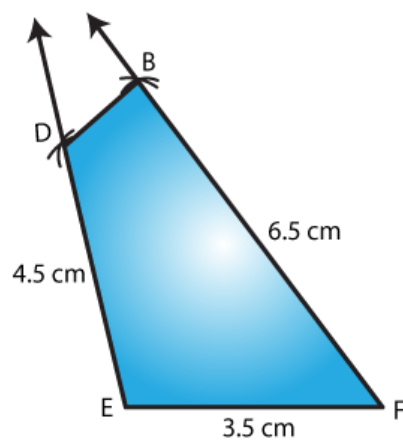
Step 2- Construct an angle of 100° at E.

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

Step 6- Now join DE, FB and DB



1. Construct a quadrilateral ABCD given that $AB = 4$ cm, $BC = 3$ cm, $\angle A = 75^\circ$, $\angle B = 80^\circ$ and $\angle C = 120^\circ$.

Solution:

The given details are $AB = 4$ cm, $BC = 3$ cm, $\angle A = 75^\circ$, $\angle B = 80^\circ$ and $\angle C = 120^\circ$.

Steps to construct a quadrilateral:

Step 1- Draw a line $AB = 4$ cm

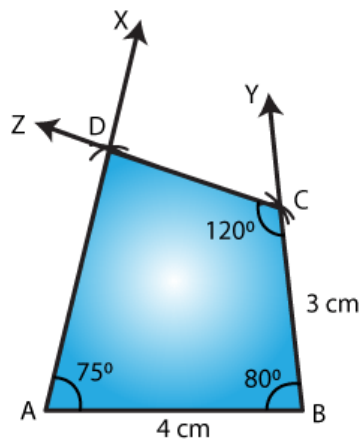
Step 2- Construct an angle of 75° at A.

Step 3- Construct an angle of 80° at B.

Step 4- Cut an arc of radius 3cm with B as the center to mark that point as C.

Step 5- Construct an angle of 120° at C such that it meets the line segment AX, mark that point as D.

Step 6- Now join BC, CD and DA



2. Construct a quadrilateral ABCD where $AB = 5.5$ cm, $BC = 3.7$ cm, $\angle A = 60^\circ$, $\angle B = 105^\circ$ and $\angle D = 90^\circ$.

Solution:

The given details are $AB = 5.5$ cm, $BC = 3.7$ cm, $\angle A = 60^\circ$, $\angle B = 105^\circ$ and $\angle D = 90^\circ$.

We know that $\angle A + \angle B + \angle C + \angle D = 360^\circ$

$$\therefore \angle C = 105^\circ$$

Steps to construct a quadrilateral:

Step 1- Draw a line $AB = 5.5$ cm

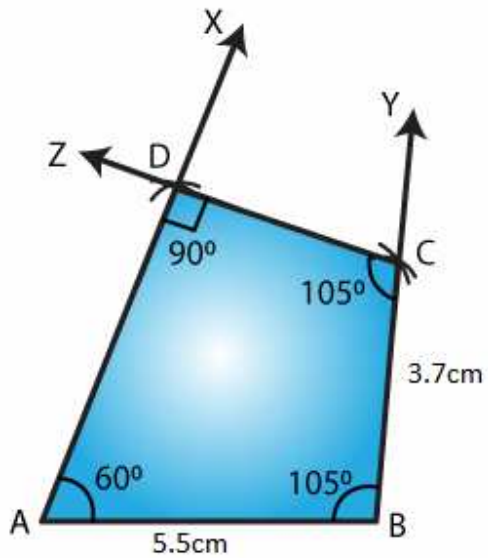
Step 2- Construct an angle of 60° at A.

Step 3- Construct an angle of 105° at B.

Step 4- Cut an arc of radius 3.7cm with B as the center to mark that point as C.

Step 5- Construct an angle of 105° at C such that it meets the line segment AX, mark that point as D.

Step 6- Now join BC, CD and DA



3. Construct a quadrilateral PQRS where $PQ = 3.5$ cm, $QR = 6.5$ cm, $\angle P = \angle R = 105^\circ$ and $\angle S = 75^\circ$.

Solution:

The given details are $PQ = 3.5$ cm, $QR = 6.5$ cm, $\angle P = \angle R = 105^\circ$ and $\angle S = 75^\circ$.

We know that $\angle P + \angle Q + \angle R + \angle S = 360^\circ$

$$\therefore \angle Q = 75^\circ$$

Steps to construct a quadrilateral:

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

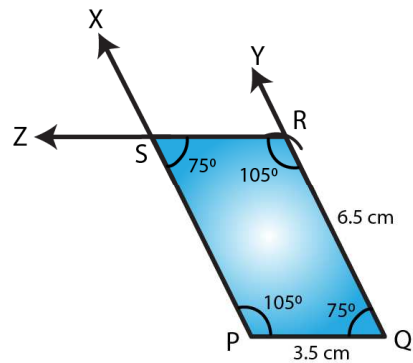
Step 2- Construct an angle of 105° at P.

Step 3- Construct an angle of 75° at Q.

Step 4- Cut an arc of radius 6.5cm with Q as the center to mark that point as R.

Step 5- Construct an angle of 105° at R such that it meets the line segment PX, mark that point as S.

Step 6- Now join QR, RS and PS



4. Construct a quadrilateral ABCD when $BC = 5.5$ cm, $CD = 4.1$ cm, $\angle A = 70^\circ$, $\angle B = 110^\circ$ and $\angle D = 85^\circ$.

Solution:

The given details are $BC = 5.5$ cm, $CD = 4.1$ cm, $\angle A = 70^\circ$, $\angle B = 110^\circ$ and $\angle D = 85^\circ$.

We know that $\angle A + \angle B + \angle C + \angle D = 360^\circ$

$$\therefore \angle C = 95^\circ$$

Steps to construct a quadrilateral:

Step 1- Draw a line $BC = 5.5$ cm

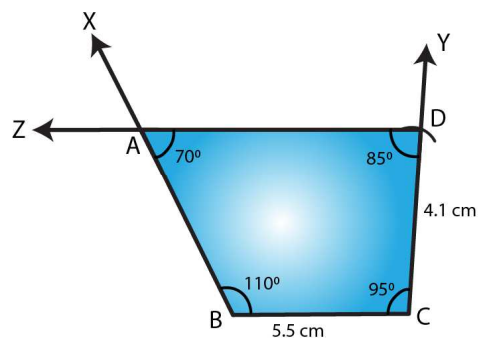
Step 2- Construct an angle of 110° at B.

Step 3- Construct an angle of 95° at C.

Step 4- Cut an arc of radius 4.1cm with C as the center to mark that point as D.

Step 5- Construct an angle of 85° at D such that it meets the line segment BX, mark that point as A.

Step 6- Now join CD, DA and BA



5. Construct a quadrilateral ABCD $\angle A = 65^\circ$, $\angle B = 105^\circ$, $\angle C = 75^\circ$, $BC = 5.7$ cm and $CD = 6.8$ cm.

Solution:

The given details are $\angle A = 65^\circ$, $\angle B = 105^\circ$, $\angle C = 75^\circ$, $BC = 5.7$ cm and $CD = 6.8$ cm.

We know that $\angle A + \angle B + \angle C + \angle D = 360^\circ$

$$\therefore \angle D = 115^\circ$$

Steps to construct a quadrilateral:

Step 1- Draw a line $BC = 5.7$ cm

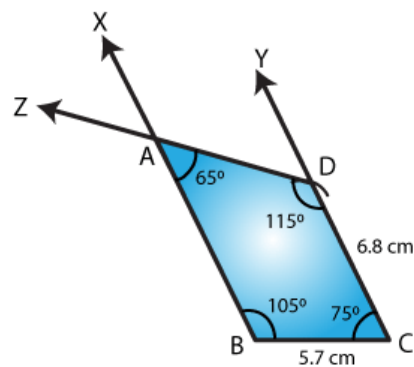
Step 2- Construct an angle of 105° at B.

Step 3- Construct an angle of 75° at C.

Step 4- Cut an arc of radius 6.8cm with C as the center to mark that point as D.

Step 5- Construct an angle of 115° at D such that it meets the line segment BX, mark that point as A.

Step 6- Now join CD, DA and BA



6. Construct a quadrilateral PQRS in which $PQ = 4$ cm, $QR = 5$ cm $\angle P = 50^\circ$, $\angle Q = 110^\circ$ and $\angle R = 70^\circ$.

Solution:

The given details are $PQ = 4$ cm, $QR = 5$ cm $\angle P = 50^\circ$, $\angle Q = 110^\circ$ and $\angle R = 70^\circ$.

Steps to construct a quadrilateral:

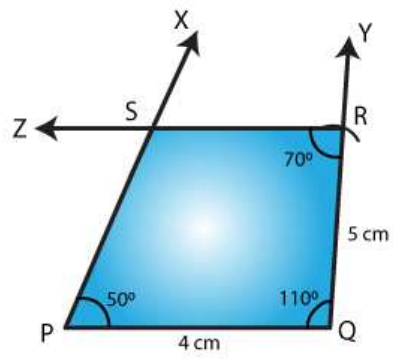
Step 1- Draw a line $PQ = 4$ cm

Step 2- Construct an angle of 50° at P.

Step 3- Construct an angle of 110° at Q.

Step 4- Cut an arc of radius 5cm with Q as the center to mark that point as R.

Step 5- Construct an angle of 70° at R such that it meets the line segment PX, mark that point as S.



Step 6- Now join QR, RS and PS