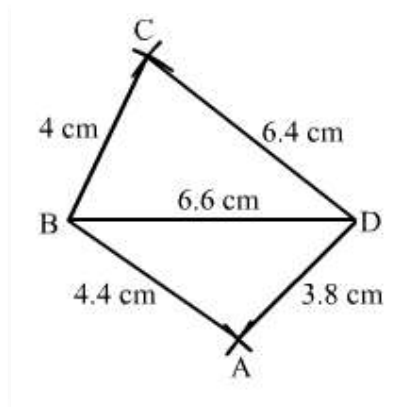


RD SHARMA
Solutions
Class 8 Maths
Chapter 18
Ex 18.1

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.



First, we draw a rough sketch of the quadrilateral ABCD and write down its dimensions along the sides.

We may divide the quadrilateral into two constructible triangles ABD and BCD.

Steps of Construction:

Step I: Draw $BD = 6.6$ cm

Step II: With B as the center and radius $BC = 4$ cm, draw an arc.

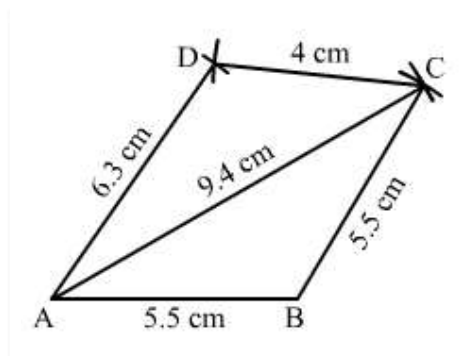
Step III: With D as the center and radius 6.4 cm, draw an arc to intersect the arc drawn in Step II at C.

Step IV: With B as the center and radius 4.4 cm, draw an arc on the side BD opposite to that of C.

Step V: With D as the center and radius 3.8 cm, draw an arc to intersect the arc drawn in Step IV at A.

Step VI: Join BA, DA, BC and CD. The quadrilateral ABCD so obtained is the required quadrilateral.

2. Construct a quadrilateral ABCD such that $AB = BC = 5.5$ cm, $CD = 4$ cm, $DA = 6.3$ cm and $AC = 9.4$ cm. Measure BD.



Steps of construction:

Step I: Draw $AB = 5.5$ cm

Step II: With B as the center and radius $BC = 5.5$ cm, draw an arc.

Step III: With A as the center and radius $AC = 9.4$ cm, draw an arc to intersect the arc drawn in Step II at C.

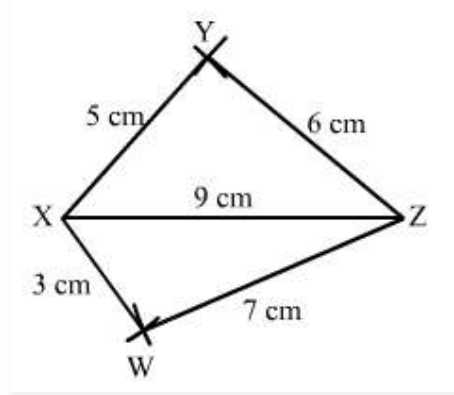
Step IV: With C as the center and radius $CD = 4$ cm, draw an arc.

Step V: With A as the center and radius $AD = 6.3$ cm, draw an arc to intersect the arc drawn in Step IV at D.

Step VI: Join DA, BC, AC, and CD.

The quadrilateral ABCD so obtained is the required quadrilateral.

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



Steps of construction:

Step I: Draw $XZ = 9\text{ cm}$

Step II: With X as the center and radius 5 cm, draw an arc above XZ.

Step III: With Z as the center and radius 6 cm, draw an arc to intersect the arc drawn in Step II at Y above XZ.

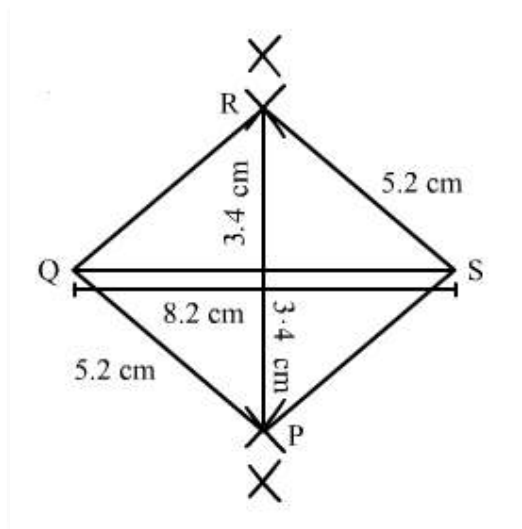
Step IV: With Z as the center and radius 7 cm, draw an arc below XZ.

Step V: With X as the center and radius 3 cm, draw an arc to intersect the arc drawn in Step IV at W below XZ.

Step VI: Join XY, YZ, ZW, and XW.

The quadrilateral WXYZ so obtained is the required quadrilateral.

4. Construct a parallelogram PQRS such that $PQ = 5.2\text{ cm}$, $PR = 6.8\text{ cm}$ and $QS = 8.2\text{ cm}$.



In a parallelogram opposite sides are equal.

Thus, we have to construct a quadrilateral PQRS in which $PQ = 5.2\text{ cm}$, $PR = 6.8\text{ cm}$ and $QS = 8.2\text{ cm}$.

Steps of construction:

Step I: Draw $QS = 8.2\text{ cm}$

Step II: With Q as the center and radius 5.2 cm, draw an arc.

Step III: With S as the center and radius 5.2 cm, draw an arc to intersect the arc drawn in Step II at C.

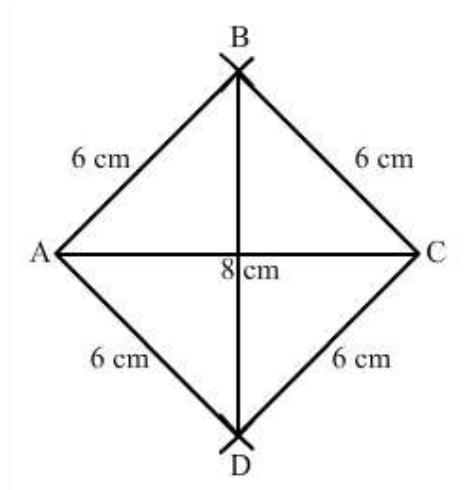
Step IV: With P as the center and radius 6.8 cm.

Step V: With Q as the center and radius 5.2 cm, draw an arc to intersect the arc drawn in Step IV at A.

Step VI: Join QR, QP, PS, and SR.

The quadrilateral PQRS so obtained is the required quadrilateral.

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



Steps of construction:

Step 1: Draw $AC = 8$ cm.

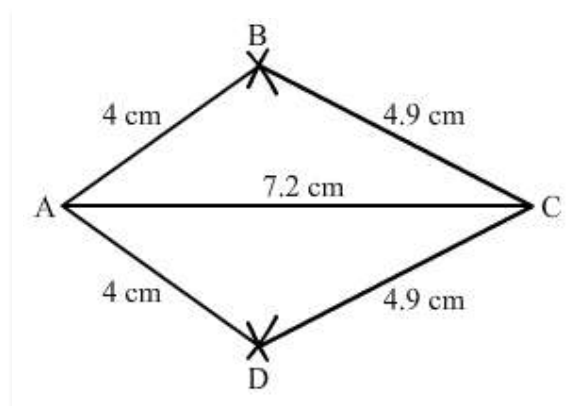
Step 2: With A as the centre and radius = 6 cm, draw arcs on both sides.

Step 3: With C as the center and radius = 6 cm, draw arcs on both sides, intersecting the previous arcs at points B and D.

Step 4: Join $BD = 8.9$ cm.

Thus, ABCD is the required rhombus.

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



Steps of construction:

Step I: Draw $AC = 7.2$ cm.

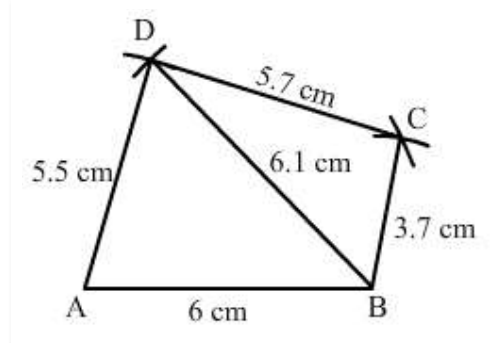
Step II: With A as the centre and radius 4cm, draw arcs on both sides of the line segment AC.

Step III: With C as the centre and radius 4.9 cm, draw arcs on both sides of AC intersecting the previous arcs of step II at B and D.

Step IV: Join BA, DA, BC and CD.

Thus, the quadrilateral ABCD so obtained is the required kite.

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.



Steps of construction:

Step I: Draw $AB = 6$ cm.

Step II: With A as the center and radius 5.5 cm, draw an arc.

Step III: With B as the center and radius 6.1 cm, draw an arc to intersect the arc drawn in Step II at D.

Step IV: With B as the centre and radius 3.7 cm, draw an arc on the side.

Step V: With D as the centre and radius 5.7 cm, draw an arc to intersect the arc drawn in Step IV at C.

Step VI: Join BD, DA, BC and CD.

The quadrilateral ABCD so obtained is the required quadrilateral.

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

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

But here in triangle ACD,

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

$$\text{and } AC = 11 \text{ cm}$$

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

So, the construction is not possible.