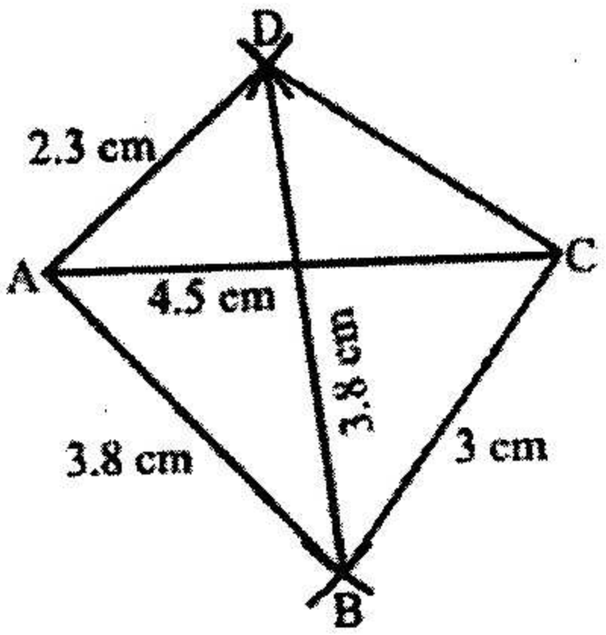
Exercise 18.2

Question 1: Construct a quadrilateral ABCD in which AB = 3.8 cm, BC = 3.0 cm, AD = 2.3 cm, AC = 4.5 cm and BD = 3.8 cm



Solutions:

Steps of construction:

Step I: Draw $AC = 6$ cm.

Step II: With A as the center and radius 3.8 cm, draw an arc.

Step III: With C as the center and radius 3.0 cm, draw an arc to intersect the arc drawn in Step II at B.

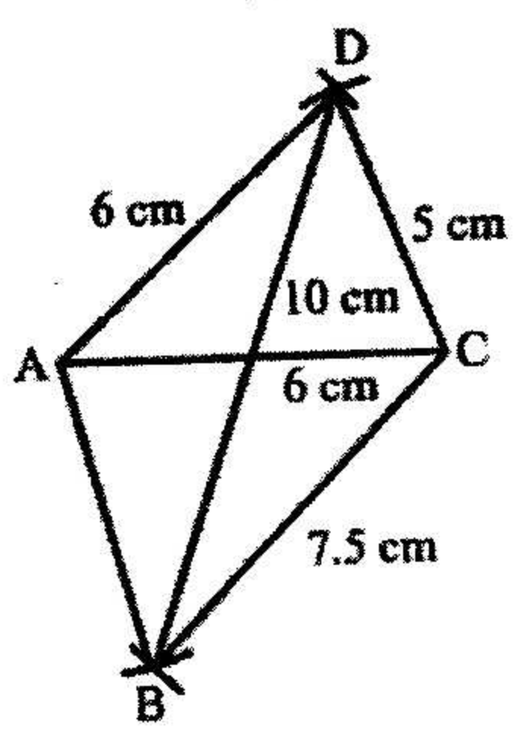
Step IV: With B as the center and radius 3.8 cm, draw an arc on the other side of AC.

Step V: With A as the center and radius 2.3 cm, draw an arc to intersect the arc drawn in Step IV at D.

Step VI: Join BA, DA, BC and CD to obtain the required quadrilateral.

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

Solution



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Step I: Draw $AC = 6$ cm.

Step II: With A as the center and radius 6 cm, draw an arc.

Step III: With C as the center and radius 5 cm, draw an arc to intersect the arc drawn in Step II at D.

Step IV: With D as the center and radius 10 cm, draw an arc on the other side of the line segment AC.

Step V: With C as the center and radius 7.5 cm, draw an arc to intersect the arc drawn in Step IV at B.

Step VI: Join BA, DA, BC and CD to obtain the required quadrilateral.

Question 3: Construct a quad. ABCD, AB = 3cm, CD = 3cm DA = 7.5 cm, AC = 8 cm, BD = 4cm.

If we consider a triangle ABD from the given data, then

$AB = 3$ cm

$BD = 4$ cm

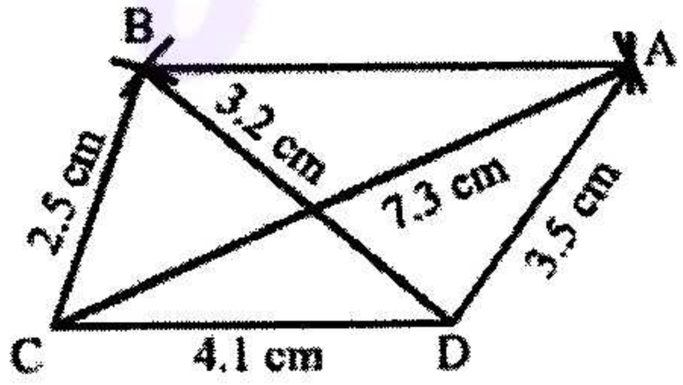
$AD = 7.5$ cm

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

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

Therefore, construction is not possible for given data.

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



Step I: Draw $CD = 4.1$ cm.

Step II: With C as the center and radius 7.3 cm, draw an arc.

Step III: With D as the center and radius 3.5 cm, draw an arc to intersect the arc drawn in Step II at A.

Step IV: With D as the center and radius 3.2 cm, draw an arc on the other side of AC.

Step V: With C as the center and radius 2.5 cm, draw an arc to intersect the arc drawn in Step IV at B.

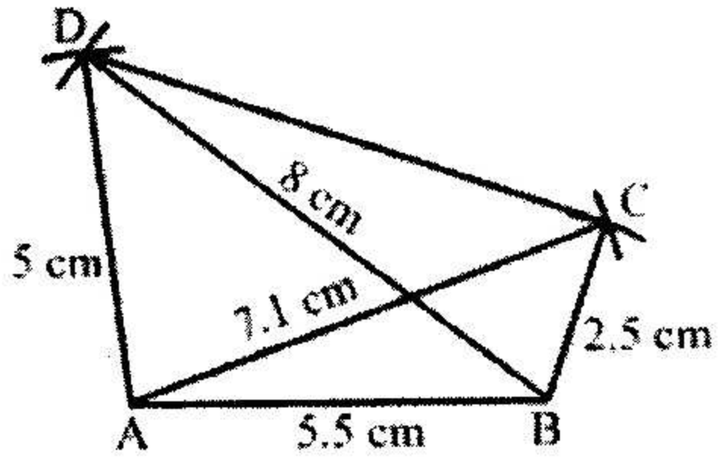
Step VI: Join BA, DA, BC and BD and AC to obtain the required quadrilateral.

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Q.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.

Sol:



Step I: Draw $AB = 5.5$ cm.

Step II: With A as the center and radius 7.1 cm, draw an arc.

Step III: With B as the center and radius 2.5 cm, draw an arc to intersect the arc drawn in Step II at C.

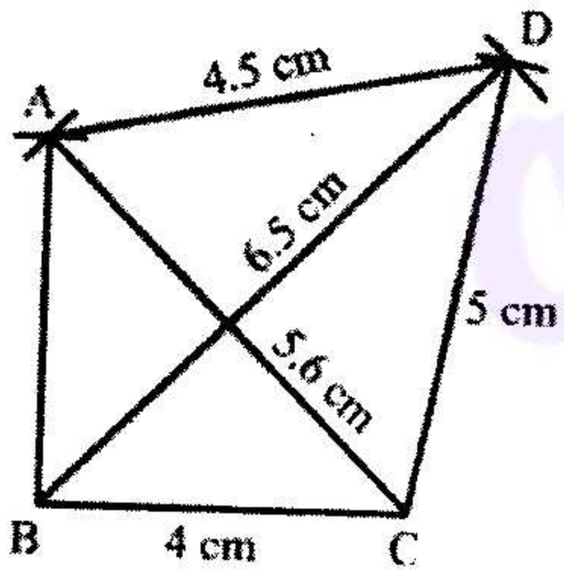
Step IV: With B as the center and radius 8 cm, draw an arc.

Step V: With A as the center and radius 5 cm, draw an arc to intersect the arc drawn in Step IV at D.

Step VI: Join DA, DB, BC, AC, and CD to obtain the required quadrilateral.

Question 6:

Construct a quadrilateral ABCD, where ∠BC = 4 CA = 5.6 cm, AD = 4.5 cm, CD = 5 cm, BD = 6.5 cm



Solutions:

Steps of construction:

Step I: Draw $BC = 4$ cm.

Step II: With B as the center and radius 6.5 cm, draw an arc.

Step III: With C as the center and radius 5 cm, draw an arc to intersect the arc drawn in Step II at D.

Step IV: With C as the center and radius 5.6 cm, draw an arc on the same side

Step V: With D as the center and radius 4.5 cm, draw an arc to intersect the arc drawn in Step IV at A.

Step VI: Join BA, AC, DA, BD, and CD to obtained the required quadrilateral.

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