Exercise 3.2 – Construction of Quadrilaterals

(a) Quadrilateral ABCD

Given: AB = 4.5 cm, BC = 5.5 cm, CD = 4 cm, AD = 6 cm, and AC = 7 cm
Construction Steps:
1. Draw a line segment AB = 4.5 cm.
2. With centres A and B, draw arcs of radii 7 cm and 5.5 cm respectively. Let them intersect at C.
3. Join AC and BC.
4. With centres A and C, draw arcs of radii 6 cm and 4 cm respectively. Let them intersect at D.
5. Join AD and CD.
6. Therefore, the required quadrilateral ABCD is formed.

(b) Quadrilateral PQRS

Given: PQ = 3.5 cm, QR = 4 cm, RS = 5 cm, PS = 4.5 cm, and QS = 6.5 cm
Construction Steps:
1. Draw a line segment PQ = 3.5 cm.
2. With centres P and Q, draw arcs of radii 4.5 cm and 6.5 cm respectively. Let them intersect at S.
3. Join PS and QS.
4. With centres S and Q, draw arcs of radii 5 cm and 4 cm respectively. Let them intersect at R.
5. Join SR and QR.
6. Therefore, the required quadrilateral PQRS is formed.

(c) Parallelogram ABCD

Given: AB = 6 cm, AD = 4.5 cm, and BD = 7.5 cm
Construction Steps:
1. Draw a line segment AB = 6 cm.
2. With centres A and B, draw arcs of radii 4.5 cm and 7.5 cm respectively. Let them intersect at D.
3. Join AD and BD.
4. With centres B and D, draw arcs of radii 4.5 cm and 6 cm respectively. Let them intersect at C.
5. Join BC and DC.
6. Therefore, the required parallelogram ABCD is formed.

(d) Rhombus NICE

Given: NI = 4 cm and IE = 5.6 cm
Construction Steps:
1. Draw a line segment NI = 4 cm.
2. With centres N and I, draw arcs of radii 4 cm and 5.6 cm respectively. Let them intersect at E.
3. Join NE and IE.
4. With centres I and E, draw arcs of radii 4 cm each. Let them intersect at C.
5. Join IC and EC.
6. Therefore, the required rhombus NICE is formed.