Exercise 4.3

Question 1:

Construct the following quadrilaterals:

(i) Quadrilateral MORE
MO = 6 cm, OR = 4.5 cm, $\angle M = 60^\circ$, $\angle O = 105^\circ$, $\angle R = 105^\circ$

(ii) Quadrilateral PLAN
PL = 4 cm, LA = 6.5 cm, $\angle P = 90^\circ$, $\angle A = 110^\circ$, $\angle N = 85^\circ$

(iii) Parallelogram HEAR
HE = 5 cm, EA = 6 cm, $\angle R = 85^\circ$

(iv) Rectangle OKAY
OK = 7 cm, KA = 5 cm

Answer 1:

(i) **Given**: MO = 6 cm, OR = 4.5 cm, $\angle M = 60^\circ$, $\angle O = 105^\circ$, $\angle R = 105^\circ$

To construct: A quadrilateral MORE.

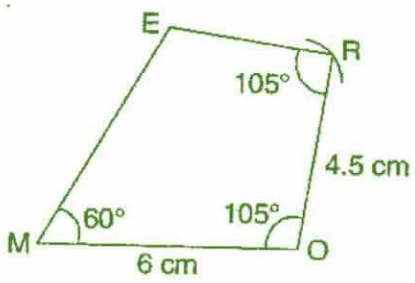
Steps of construction:

(a) Draw a line segment MO = 6 cm.

(b) Construct $\angle R = 105^\circ$ and taking radius 4.5 cm, draw an arc taking O as centre, which intersects at R.

(c) Also construct an angle 105° at R and produce the side RE.

(d) Construct another angle of 60° at point M and produce the side ME. Both sides ME and RE intersect at E.



It is the required quadrilateral MORE.

(ii) **Given**: PL = 4 cm, LA = 6.5 cm, $\angle P = 90^\circ$, $\angle A = 110^\circ$, $\angle N = 85^\circ$

To construct: A quadrilateral PLAN.

To find: $\angle L = 360^\circ - (90^\circ + 85^\circ + 110^\circ) = 360^\circ - 285^\circ = 75^\circ$

Steps of construction:

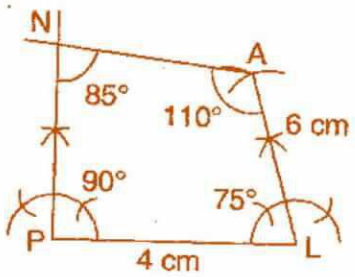
(a) Draw a line segment PL = 4 cm.

(b) Construct angle of 90° at P and produce the side PN.

(c) Construct angle of 75° at L and with L as centre, draw an arc of radius 6 cm, which intersects at A.

(d) Construct $\angle A = 110^\circ$ at A and produce the side AN which intersects PN at N.

It is the required quadrilateral PLAN.



(iii) **Given**: HE = 5 cm, EA = 6 cm, $\angle R = 85^\circ$

To construct: A parallelogram HEAR.

To find: $\angle H = 180^\circ - 85^\circ = 95^\circ$ [$\because$ Sum of adjacent angle of $||^{gm}$ is 180°]

Steps of construction:

(a) Draw a line segment HE = 5 cm.

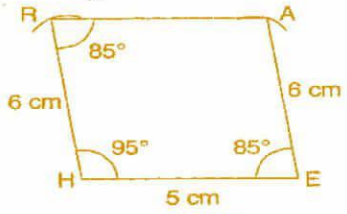
(b) Construct $\angle H = 95^\circ$ and draw an arc of radius 6 cm with centre H. It intersects AR at R.

(c) Join RH.

(d) Draw $\angle R = \angle E = 85^\circ$ and draw an arc of radius 6 cm with E as a centre which intersects RA at A.

(e) Join RA

It is the required parallelogram HEAR.



(iv) **Given**: OK = 7 cm, KA = 5 cm

To construct: A rectangle OKAY.

Steps of construction:

(a) Draw a line segment OK = 7 cm.

(b) Construct angle 90° at both points O and K and produce these sides.

(c) Draw two arcs of radius 5 cm from points O and K respectively. These arcs intersect at Y and A.

(d) Join YA.

It is the required rectangle OKAY.