

Geometrical Construction Steps for Exercise 3.4

(a) Quadrilateral HELP

Question: Construct quadrilateral HELP with $HE = 6\text{ cm}$, $EL = 4.5\text{ cm}$, $\angle H = 60^\circ$, $\angle E = 105^\circ$, and $\angle P = 75^\circ$.

Construction Steps:

1. Draw a line segment HE with length 6 cm.
2. Draw rays at H and E making angles of 60° and 105° respectively.
3. With E as centre and radius 4.5 cm, draw an arc to cut the ray at point L.
4. Draw a ray at L making an angle of 75° ($180^\circ - 105^\circ$).
5. Draw another ray at H making an angle of 120° . The two rays intersect at P.
6. Join P to L and P to H.
7. HELP is the required quadrilateral.

(b) Parallelogram GRAM

Question: Construct parallelogram GRAM with $GR = AM = 5\text{ cm}$, $RA = MG = 6.2\text{ cm}$ and $\angle R = 85^\circ$.

Construction Steps:

1. Draw a line segment GR with length 5 cm.
2. Draw a ray at R making an angle of 85° .
3. With R as centre and radius 6.2 cm, draw an arc to cut the ray at A.
4. With G and A as centres and radii of 6.2 cm and 5 cm respectively, draw arcs to intersect at M.
5. Join GM and AM.
6. GRAM is the required parallelogram.

(c) Rectangle FLAG

Question: Construct rectangle FLAG with $FL = 6\text{ cm}$ and $LA = 4.2\text{ cm}$.

Construction Steps:

1. Draw a line segment FL with length 6 cm.
2. Draw rays at F and L making an angle of 90° each.
3. With F and L as centres and radius 4.2 cm, draw arcs to cut the rays at G and A respectively.
4. Join G to A and G to F, A to L.
5. FLAG is the required rectangle.