

RD Sharma
Solutions

Class 7

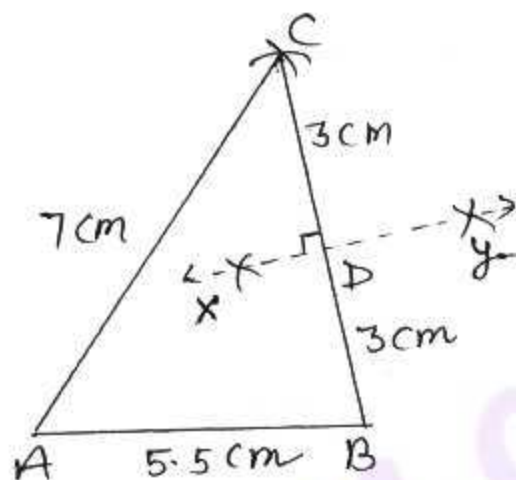
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Exercise 17.2

Q.1 Draw $\triangle ABC$ in which $AB = 5.5 \text{ cm}$, $BC = 6 \text{ cm}$ and $CA = 7 \text{ cm}$. Also draw perpendicular bisector of side BC .

Solution:



Steps of Construction

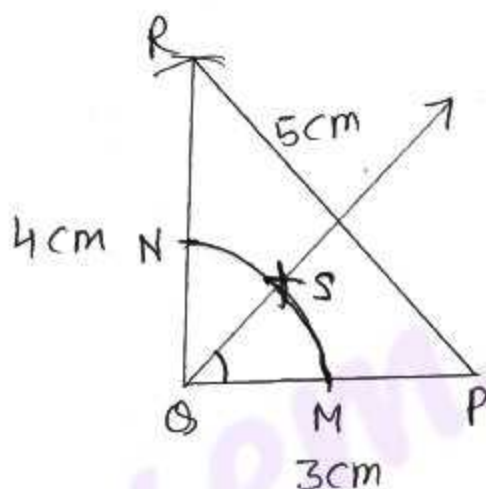
- (i) Draw a line $AB = 5.5 \text{ cm}$.
- (ii) Taking A as centre and radius of 7 cm cut an arc.
- (iii) Taking B as centre and radius of 6 cm cut an arc which meets previous arc at point C .
- (iv) Join AC , BC .
- (v) $\triangle ABC$ is required triangle.
- (vi) With centre B and radius more than half of BC draw two arcs on both sides of BC .
- (vii) With centre C and same arc draw two arcs intersecting the arcs drawn in the previous steps.

at x and y .

7. Join xy to get the perpendicular bisector of BC .

Q.2 Draw $\triangle PQR$ in which $PQ = 3\text{ cm}$, $QR = 4\text{ cm}$ and $RP = 5\text{ cm}$. Also, draw the bisector of $\angle Q$.

Solution:



Steps: (i) Draw a line segment $PQ = 3\text{ cm}$.

(ii) With Q as centre and radius 4 cm , draw an arc.

(iii) With P as centre and radius 5 cm , draw an arc intersecting the previously drawn at R .

(iv) Join PR and QR . $\triangle PQR$ is a triangle.

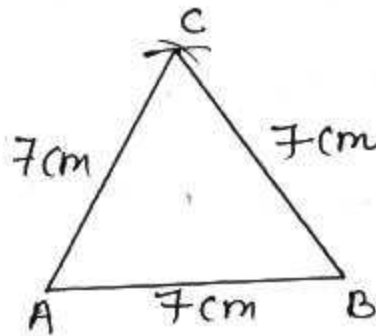
(v) Taking Q as centre cut an arc which cuts PQ and QR at points M and N .

(vi) From M and N , cut arcs of equal radius intersect at point S .

(vii) Join QS . QS is required angle bisector.

Q.3 Draw an equilateral triangle one of whose sides is of length 7 cm.

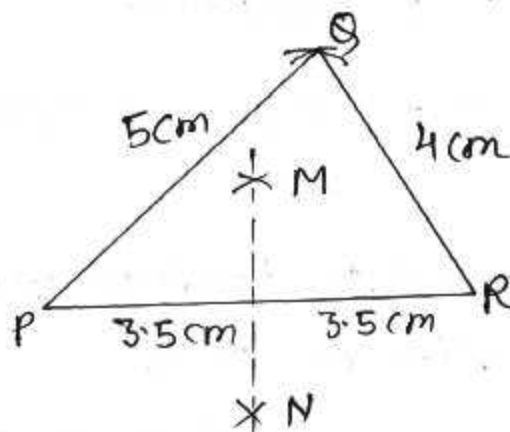
Solution:



- Steps:
- (i) Draw a line segment $AB = 7\text{ cm}$
 - (ii) By taking A as centre draw an arc of radius 7 cm
 - (iii) from B as centre cut an arc of radius 7 cm which meets previous arc at C.
 - (iv) Join AC, BC.
 - (v) Thus $\triangle ABC$ is required triangle.
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Q.4 Draw a triangle whose sides are of lengths 4 cm, 5 cm and 7 cm. Draw the perpendicular bisector of the largest side.

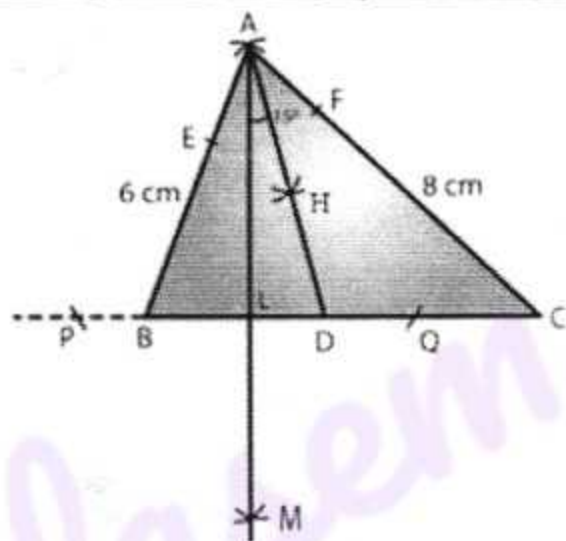
Solution:



Steps of construction, same as Q.1.

- Q.5 Draw a triangle ABC, with $AB = 6\text{ cm}$, $BC = 7\text{ cm}$ and $CA = 8\text{ cm}$. Using ruler and compass alone, draw
- the bisector AD of $\angle A$ and
 - perpendicular AL from A on BC. Measure $\angle LAD$.

Solution:

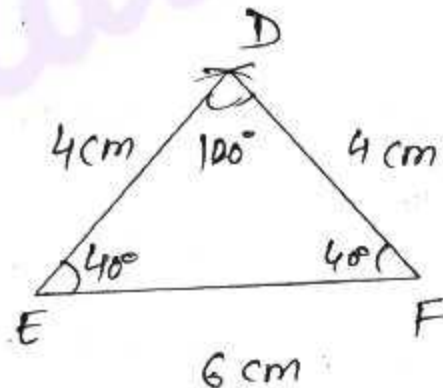


- Steps:
- Draw a line segment $BC = 7\text{ cm}$
 - with centre B, draw an arc of radius 6 cm .
 - with centre C, draw an arc of radius 8 cm intersecting previous arc at A
 - Join AC and AB to get the required triangle.
 - From A, cut arcs of equal radius intersecting AB and AC at E and F respectively
 - From E and F, cut arcs of equal radius intersecting at point H.
 - Join AH and extend to produce the angle bisector of angle A, meeting line BC at D.

- (viii) Now From A, cut arcs of equal radius intersecting BC at P and Q respectively.
- (ix) From P and Q, cut arcs of equal radius intersecting at M.
- (x) Join AM cutting BC at L
- (xi) AL is the perpendicular to the line BC.
- (xii) $\angle LAD = 15^\circ$

Q.6 Draw $\triangle DEF$ such that $DE = DF = 4\text{ cm}$ and $EF = 6\text{ cm}$. Measure $\angle E$ and $\angle F$.

Solution :



Steps: (i) Draw a line segment $EF = 6\text{ cm}$.

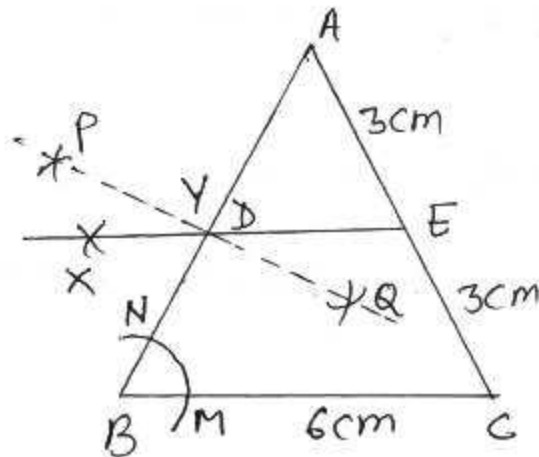
(ii) With E as centre cut an arc of radius 4 cm .

(iii) With F as centre cut an arc of radius 4 cm .
Let this arc meet previous arc at D.

(iv) $\triangle DEF$ is required triangle.

(v) By measuring, we get $\angle E = \angle F = 40^\circ$.

Q7 Draw any triangle ABC. Bisect side AB at D. Through D, draw a line parallel to BC, meeting AC in E. Measure AE and EC.



Steps: (i) First we draw a $\triangle ABC$.

(ii) Draw an arc from A on either side of AB.

(iii) By taking same arc draw arcs on either side of AB, intersecting previous arcs at P and Q.

(iv) Join PQ. PQ is perpendicular bisector of AB.

Steps to parallel line

(v) with B as centre, draw arc cutting BC and BA at M and N respectively.

(vi) with centre D and same radius, draw an arc on the opposite side of AB to cut AB at Y.

(vii) with centre Y and radius equal to MN, draw an arc cutting the arc drawn in previous step at X.

(viii) Join XD and extend it to intersect AC at E.

(ix) DE is the required parallel line.