



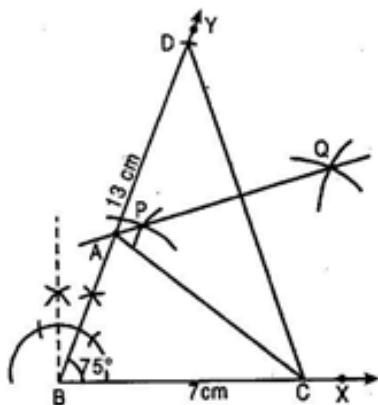
NCERT solutions for class 9 maths Constructions Ex 11.2

Q1. Construct a triangle ABC in which $BC = 7\text{ cm}$, $\angle B = 75^\circ$ and $AB + AC = 13\text{ cm}$.

Ans. Given : Base $BC = 7\text{ cm}$, $\angle B = 75^\circ$ and sum of two sides $AB + AC = 13\text{ cm}$.

To construct : A triangle ABC.

Steps of construction:



(a) Draw a ray BX and cut off a line segment $BC = 7\text{ cm}$ from it.

(b) At B , construct $\angle YBX = 75^\circ$.

(c) With B as centre and radius $= 13\text{ cm}$ ($\because AB + AC = 13\text{ cm}$) draw an arc to meet BY at D .

(d) Join CD .

(e) Draw perpendicular bisector PQ of CD intersecting BD at A .

(f) Join AC .

Then ABC is required triangle.

Justification:

A lies on perpendicular bisector of CD .

$\therefore AC = AD$

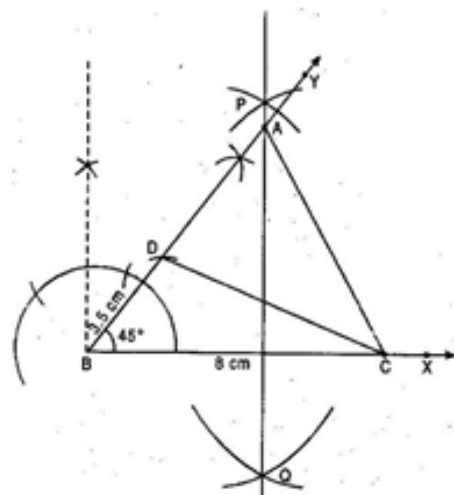
And $AB = BD - AD \Rightarrow AB = BD - AC$

$\Rightarrow AB + AC = BD = 13\text{ cm}$

Q2. Construct a triangle ABC in which $BC = 8$ cm, $\angle B = 45^\circ$ and $AB - AC = 3.5$ cm.

Ans. Given: Base $BC = 8$ cm, One Base angle $\angle B = 45^\circ$ and $AB - AC = 3.5$ cm

To construct: A triangle ABC.



Steps of construction:

(a) Draw a ray BX and cut off a line segment $BC = 8$ cm from it.

(b) Cut $\angle YBC = 45^\circ$.

(c) Cut off a line segment $BD = 3.5$ cm

($\because AB - AC = 3.5$ cm) from BY.

(d) Join CD.

(e) Draw perpendicular bisector PQ of CD intersecting BY at a point A.

(f) Join AC.

Then ABC is the required triangle.

Justification:

A lies on the perpendicular bisector of CD.

$\therefore AD = AC$

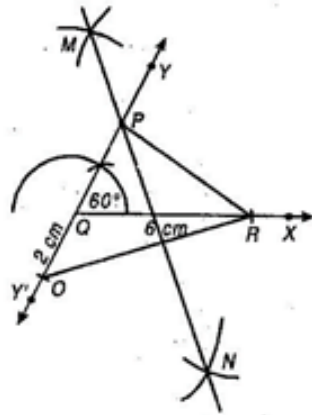
Now $BD = AB - AD$

$\Rightarrow BD = AB - AC = 3.5$ cm

Q3. Construct a triangle PQR in which $QR = 6$ cm, $\angle Q = 60^\circ$ and $PR - PQ = 2$ cm.

Ans. Given: Base $QR = 6$ cm, one base angle $\angle Q = 60^\circ$ and $PR - PQ = 2$ cm.

To construct: A triangle PQR.



Steps of construction:

(a) Draw a ray QX and cut off a line segment QR

$= 6$ cm from it.

(b) Construct a ray QY making an angle of 60° with QR and produce YQ to form a line YQY'.

(c) Cut off a line segment $QO = 2$ cm ($\because PR - PQ = 2$ cm) from QY'.

(d) Join OR.

(e) Draw perpendicular bisector MN of OR.

(f) Join PR.

Then PQR is the required triangle.

Justification:

P lies on perpendicular bisector of OR.

$$\therefore PO = PR$$

$$\Rightarrow PQ + QO = PR$$

$$\Rightarrow QO = PR - PQ = 2 \text{ cm}$$

***** END *****