



SpeedLabs

MATHS

CBSE 7th

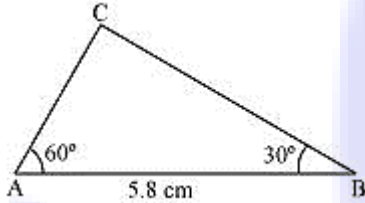
TEEVRA EDUTECH PVT. LTD.

Practical Geometry

Exercise-10.4

Q.1 Construct ΔABC , given $m \angle A = 60^\circ$, $m \angle B = 30^\circ$ and $AB = 5.8$ cm.

Sol: A rough sketch of the required ΔABC is as follows.

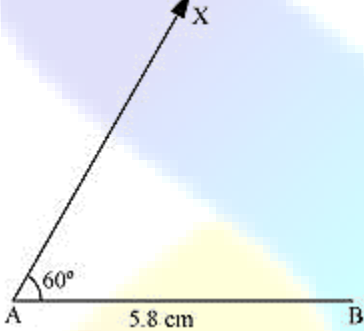


The steps of construction are as follows.

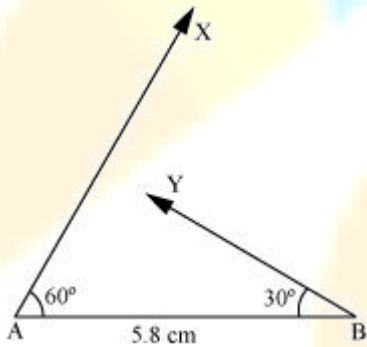
(i) Draw a line segment AB of length 5.8 cm.



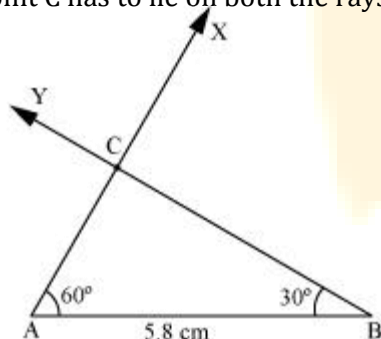
(ii) At point A, draw a ray AX making 60° angle with AB.



(iii) At point B, draw a ray BY, making 30° angle with AB.



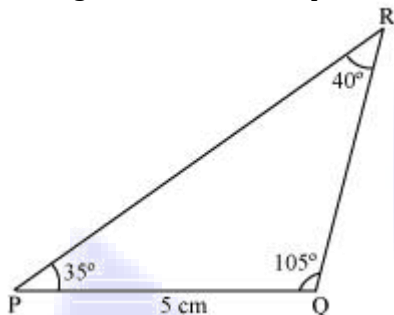
(iv) Point C has to lie on both the rays, AX and BY. Therefore, C is the point of intersection of these two rays.



This is the required triangle ABC.

Q.2 Construct ΔPQR if $PQ = 5$ cm, $m \angle PQR = 105^\circ$ and $m \angle QRP = 40^\circ$.
(Hint: Recall angle sum property of a triangle).

Sol: A rough sketch of the required ΔPQR is as follows.



In order to construct ΔPQR , the measure of $\angle RPQ$ has to be calculated.

According to the angle sum property of triangles,

$$\angle PQR + \angle PRQ + \angle RPQ = 180^\circ$$

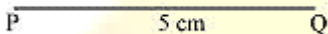
$$105^\circ + 40^\circ + \angle RPQ = 180^\circ$$

$$145^\circ + \angle RPQ = 180^\circ$$

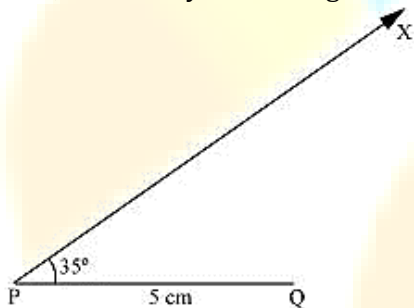
$$\angle RPQ = 180^\circ - 145^\circ = 35^\circ$$

The steps of construction are as follows.

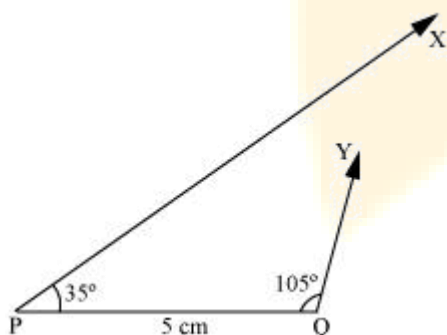
(i) Draw a line segment PQ of length 5 cm.



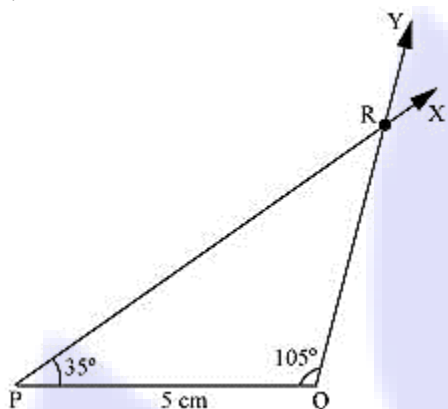
(ii) At P , draw a ray PX making an angle of 35° with PQ .



(iii) At point Q , draw a ray QY making an angle of 105° with PQ .



(iv) Point R has to lie on both the rays, PX and QY. Therefore, R is the point of intersection of these two rays.



This is the required triangle PQR.

Q.3 Examine whether you can construct $\triangle DEF$ such that $EF = 7.2$ cm, $m \angle E = 110^\circ$ and $m \angle F = 80^\circ$. Justify your answer.

Sol: Given that,

$$m \angle E = 110^\circ \text{ and } m \angle F = 80^\circ$$

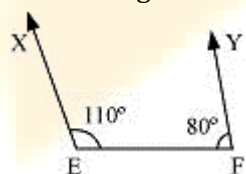
Therefore,

$$m \angle E + m \angle F = 110^\circ + 80^\circ = 190^\circ$$

However, according to the angle sum property of triangles, we should obtain

$$m \angle E + m \angle F + m \angle D = 180^\circ$$

Therefore, the angle sum property is not followed by the given triangle. And thus, we cannot construct $\triangle DEF$ with the given measurements.



Also, it can be observed that point D should lie on both rays, EX and FY, for constructing the required triangle. However, both rays are not intersecting each other. Therefore, the required triangle cannot be formed.