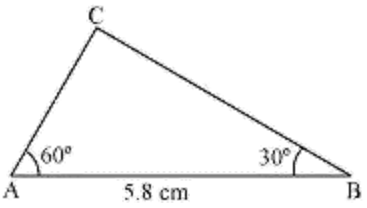
Board – CBSE	Class – 7th	Topic – Practical Geometry 10.4

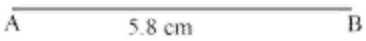
Q.1 Construct ΔABC, given m ∠A = 60°, m ∠B = 30° and AB = 5.8 cm.

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

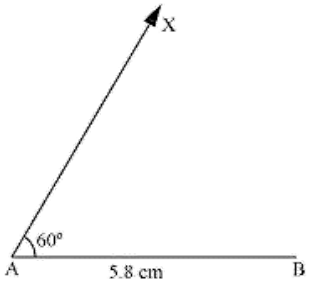


The steps of construction are as follows.

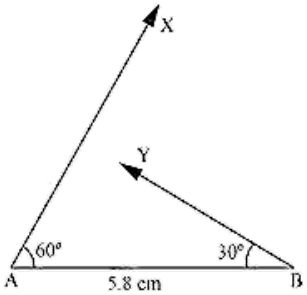
(i)Draw a line segment AB of length 5.8 cm.



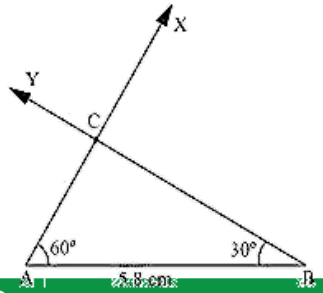
(ii)At point A, draw a ray AX making 60º angle with AB.



(iii) At point B, draw a ray BY, making 30º 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.

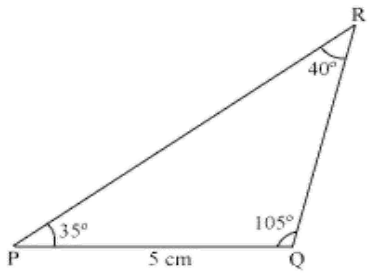


This is the required triangle ABC.

Q.2 Construct Δ PQR if PQ = 5 cm, m ∠PQR = 105° and m ∠QRP = 40°.

(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 ∠RPQ has to be calculated.

According to the angle sum property of triangles,

∠PQR + ∠PRQ + ∠RPQ = 180°

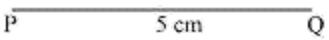
105° + 40° + ∠RPQ = 180°

145° + ∠RPQ = 180°

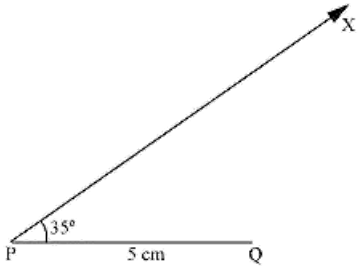
∠RPQ = 180° − 145° = 35°

The steps of construction are as follows.

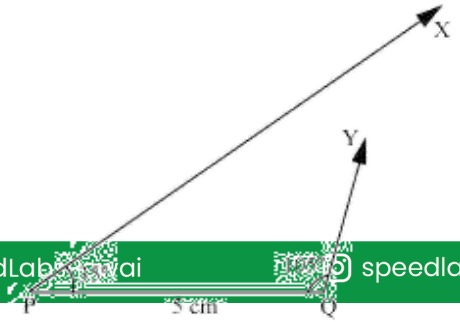
(i) Draw a line segment PQ of length 5 cm.



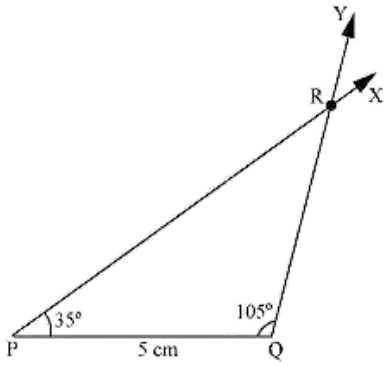
(ii) At P, draw a ray PX making an angle of 35° with PQ.



(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 ΔDEF such that EF = 7.2 cm, m ∠E = 110° and m ∠F = 80°. Justify your answer.

Sol: Given that,

m ∠E = 110° and m ∠F = 80°

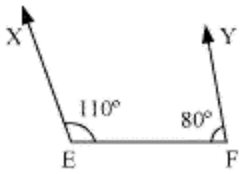
Therefore,

m ∠E + m ∠F = 110° + 80° = 190°

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

m ∠E + m ∠F + m ∠D = 180°

Therefore, the angle sum property is not followed by the given triangle. And thus, we cannot construct ΔDEF 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.