Chapter – 10
Practical Geometry
Exercise 10.4

1. Construct ΔABC, give m $\angle A = 60^o$, m $\angle B = 30^o$ and AB = 5.8 cm.

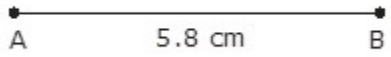
Answer:

Here,

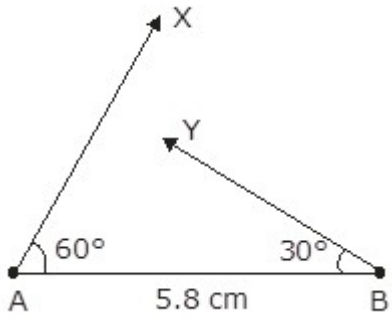
According to the question,

We have to draw figure using following steps of construction:

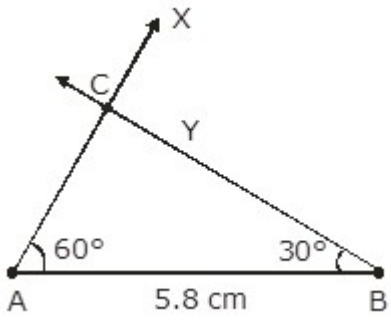
Step 1: Draw a line segment AB of 5.8 cm



Step 2: Now, from point A draw a ray AX making an angle of 60° from AB. And, from B, draw a ray BY from AB making 30° angle.



Step 3: The rays YB and XA will intersect at point C. Hence ΔABC is the required triangle.



2. Construct ΔPQR if PQ = 5 cm, m ∠RPQ = 105° and m ∠QRP = 40°

Answer:

Here,

According to the question,

In ΔPQR,

Using angle sum property of triangle,

∠RPQ = 180 – (∠PQR + ∠QRP)

= 180 – (105 + 40)

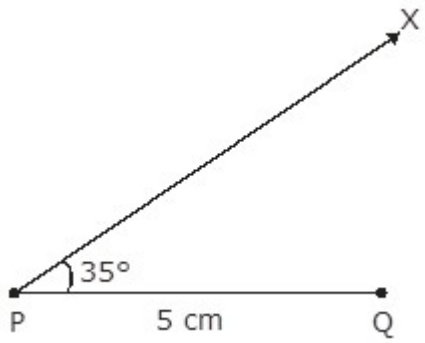
= 180 – 145

∠RPQ = 35°

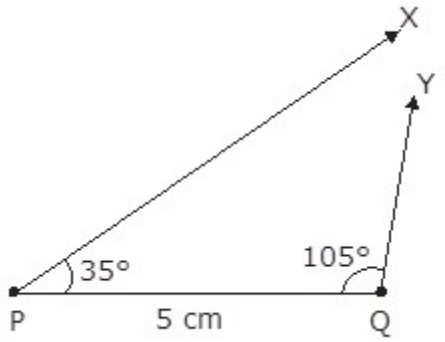
We have to draw figure using following steps of construction:

Step 1: Draw a line segment PQ of 5 cm

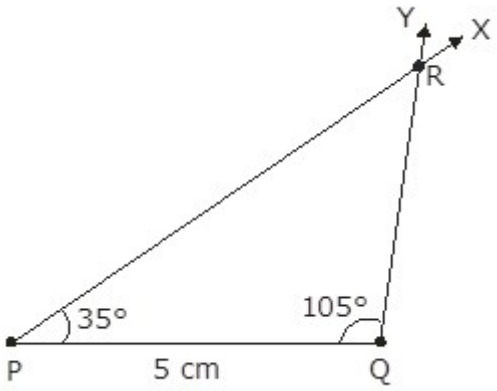
Step 2: Now, from point P draw a ray PX making an angle of 35° from PQ.



Step 3: From Q, draw a ray QY from PQ making 105° angle. and intersecting PX at R



Step 4: The ray QY will intersect with PX at point R. Hence ΔABC is the required triangle.



3. Examine whether you can construct ΔDEF such that EF = 7.2 cm, m ∠E = 110° and m ∠F = 80°. Justify your answer.

Answer:

Here,

According to the question,

It is given that,

∠E = 110° and ∠F = 80°

That shows that ∠E + ∠F = 110 + 80

= 190°

This is greater than 180°

And, we know that,

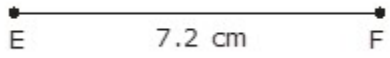
The sum of interior angles of triangle is 180°

Hence,

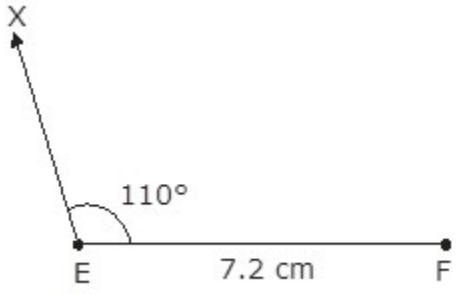
The given measurements cannot form a triangle.

We have to draw figure using following steps of construction:

Step 1: Draw a line segment EF of 7.2 cm



Step 2: Now, from point E draw a ray EX making an angle of 110° from EF.



Step 3: From F, draw a ray FY from EF making 80° angle

Now, we can observe that EX and FY does not intersect.

Hence,

The ΔDEF is not possible.