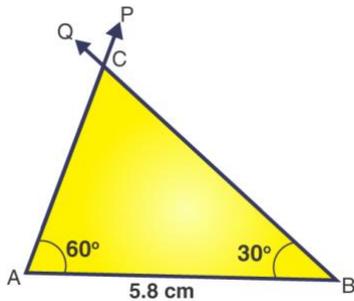


MOUNT LITERA ZEE SCHOOL
GRADE -7
SUBJECT-MATHEMATICS
ASSIGNMENT-Practical geometry

Date-13.02.21

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

Solution:-



Steps of construction:

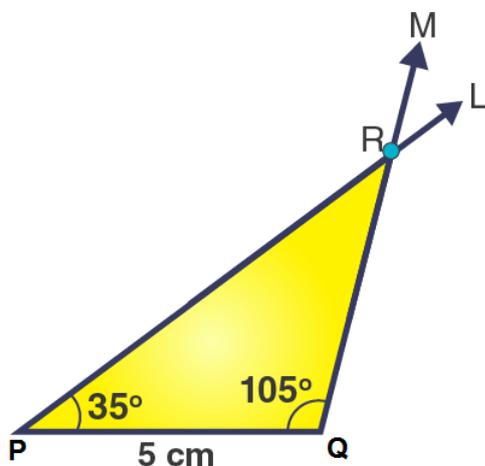
1. Draw a line segment $AB = 5.8$ cm.
2. At point A, draw a ray P to making an angle of 60° i.e. $\angle PAB = 60^\circ$.
3. At point B, draw a ray Q to making an angle of 30° i.e. $\angle QBA = 30^\circ$.
4. Now the two rays AP and BQ intersect at the point C.

Then, $\triangle ABC$ is the required triangle.

2. Construct $\triangle PQR$ if $PQ = 5$ cm, $m \angle PQR = 105^\circ$ and $m \angle QRP = 40^\circ$.

(Hint: Recall angle-sum property of a triangle).

Solution:-



We know that the sum of the angles of a triangle is 180° .

$$\therefore \angle PQR + \angle QRP + \angle RPQ = 180^\circ$$

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

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

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

$$= \angle RPQ = 35^\circ$$

Hence, the measures of $\angle RPQ$ is 35° .

Steps of construction:

1. Draw a line segment $PQ = 5$ cm.
2. At point P, draw a ray L to making an angle of 105° i.e. $\angle LPQ = 105^\circ$.
3. At point Q, draw a ray M to making an angle of 40° i.e. $\angle MQP = 40^\circ$.
4. Now the two rays PL and QM intersect at the point R.

Then, $\triangle PQR$ is the required triangle.

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.

Solution:-

From the question it is given that,

$$EF = 7.2 \text{ cm}$$

$$\angle E = 110^\circ$$

$$\angle F = 80^\circ$$

Now we have to check whether it is possible to construct $\triangle DEF$ from the given values.

We know that the sum of the angles of a triangle is 180° .

Then,

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

$$\angle D + 110^\circ + 80^\circ = 180^\circ$$

$$\angle D + 190^\circ = 180^\circ$$

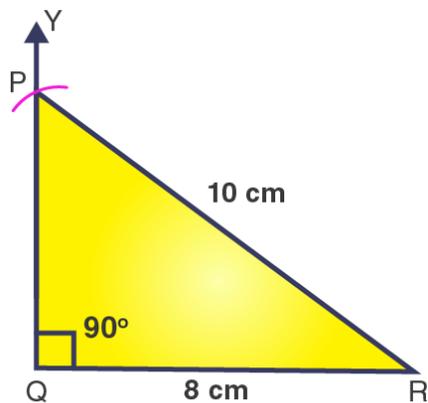
$$\angle D = 180^\circ - 190^\circ$$

$$\angle D = -10^\circ$$

We may observe that the sum of two angles is 190° is greater than 180° . So, it is not possible to construct a triangle.

4. Construct the right angled $\triangle PQR$, where $m\angle Q = 90^\circ$, $QR = 8$ cm and $PR = 10$ cm.

Solution:-



Steps of construction:

1. Draw a line segment $QR = 8 \text{ cm}$.
2. At point Q, draw a ray QY to making an angle of 90° i.e. $\angle YQR = 90^\circ$.
3. With R as a center and radius 10 cm, draw an arc that cuts the ray QY at P.
4. Join PR.

Then, ΔPQR is the required right angled triangle.

5. Construct a right-angled triangle whose hypotenuse is 6 cm long and one of the legs is 4 cm long

Solution:-

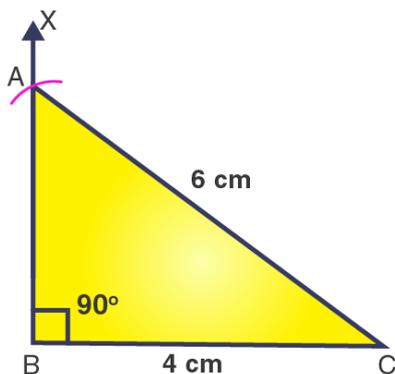
Let us consider ΔABC is a right angled triangle at $\angle B = 90^\circ$

Then,

AC is hypotenuse = 6 cm ... [given in the question]

BC = 4 cm

Now, we have to construct the right angled triangle by the above values



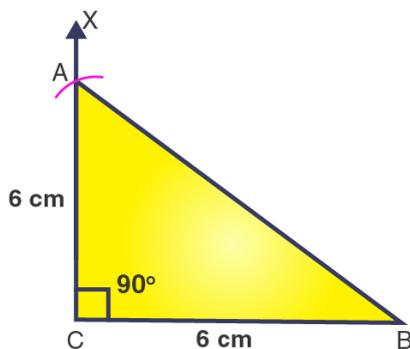
Steps of construction:

1. Draw a line segment $BC = 4$ cm.
2. At point B, draw a ray BX to making an angle of 90° i.e. $\angle XBC = 90^\circ$.
3. With C as a center and radius 6 cm, draw an arc that cuts the ray BX at A.
4. Join AC.

Then, $\triangle ABC$ is the required right angled triangle.

3. Construct an isosceles right-angled triangle ABC, where $m\angle ACB = 90^\circ$ and $AC = 6$ cm.

Solution:-



Steps of construction:

1. Draw a line segment $BC = 6$ cm.
2. At point C, draw a ray CX to making an angle of 90° i.e. $\angle XCB = 90^\circ$.
3. With C as a center and radius 6 cm, draw an arc that cuts the ray CX at A.
4. Join AB.

Then, $\triangle ABC$ is the required right angled triangle.