# **Mathematics**

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(Chapter – 10) (Practical Geometry) (Class – VII)

# Exercise 10.4

#### **Question 1:**

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

#### **Answer 1:**

**To construct**:  $\triangle$  ABC where  $m \angle A = 60^{\circ}$ ,  $m \angle B = 30^{\circ}$  and AB = 5.8 cm.

#### **Steps of construction**:

(a) Draw a line segment AB = 5.8 cm.

(b) At point A, draw an angle  $\angle$  YAB = 60° with the help of compass.

(c) At point B, draw  $\angle$  XBA = 30° with the help of compass.

(d) AY and BX intersect at the point C.

It is the required triangle ABC.



### **Question 2:**

Construct  $\triangle$  PQR if PQ = 5 cm,  $m \angle$  PQR = 105° and  $m \angle$  QRP = 40°. **Answer 2:** 

**Given**:  $m \angle PQR = 105^{\circ}$  and  $m \angle QRP = 40^{\circ}$ 

We know that sum of angles of a triangle is  $180^{\circ}$ .

- $\therefore$   $m \angle PQR + m \angle QRP + m \angle QPR = 180^{\circ}$
- $\Rightarrow$  105°+40°+*m*∠QPR = 180°
- $\Rightarrow$  145° +  $m \angle QPR = 180°$
- $\Rightarrow$   $m \angle QPR = 180^{\circ} 145^{\circ}$
- $\Rightarrow$   $m \angle QPR = 35^{\circ}$

**To construct**:  $\triangle$  PQR where  $m \angle P = 35^{\circ}$ ,  $m \angle Q = 105^{\circ}$  and PQ = 5 cm. **Steps of construction**:

(a) Draw a line segment PQ = 5 cm.

(b) At point P, draw  $\angle$  XPQ = 35° with the help of protractor.

(c) At point Q, draw  $\angle$  YQP = 105° with the help of protractor.

(d) XP and YQ intersect at point R.

It is the required triangle PQR.



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## **Question 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.

### **Answer 3:**

Given: In  $\triangle$  DEF,  $m \angle E = 110^{\circ}$  and  $m \angle F = 80^{\circ}$ . Using angle sum property of triangle

$$\Delta D + \Delta E + \Delta F = 180$$
  

$$\Rightarrow \Delta D + 110^{\circ} + 80^{\circ} = 180^{\circ}$$
  

$$\Rightarrow \Delta D + 190^{\circ} = 180^{\circ}$$
  

$$\Rightarrow \Delta D = 180^{\circ} - 190^{\circ} = -10$$

Which is not possible.



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