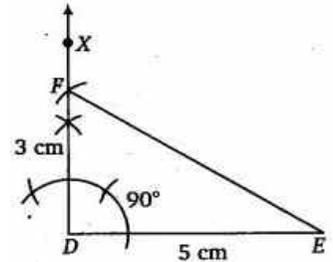| Class Notes	
Class: VII	Topic: CHAPTER -10 -PRATICAL GEOMETRY
Subject: MATHEMATICS	

EXERCISE – 10.3

Q1. Construct ΔDEF such that DE=5 cm, DF=3 cm and m∠EDF = 90°
Solution: Steps of construction
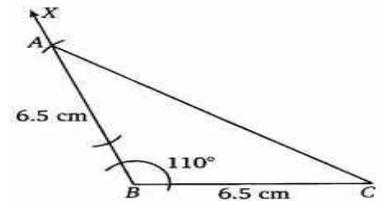
1. Draw a line segment DE = 5cm.
2. Draw ∠EDX = 90°.
3. With centre D and radius = 3 cm, draw an arc to   intersect DX at F.
4. Join EF to obtain the required triangle DEF.

Q2. Construct an isosceles triangle in which the lengths of each of its equal Sides is 6.5 cm find the angle between them is 110°
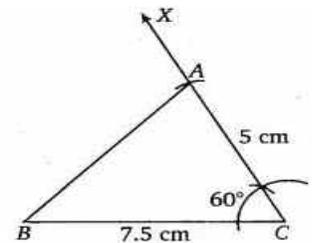**Solution:** Steps of construction
1. Draw a line segment BC = 6.5 cm.
2. Draw ∠CBX = 110°.
3. With B as centre and radius = 6.5 cm, draw an arc intersecting BX at A.
4. Join AC to obtain the required ΔABC.

Q3. Construct ΔABC with BC = 7.5 cm, AC = 5 cm and m∠C = 60°.

Solution: Steps of construction

1. Draw a line segment BC =7.5 cm.

2. Draw ∠BCX = 60°.

3. With C as centre and radius = 5 cm, draw an arc intersecting CX at A.

4. Join AB to obtain the required ΔABC.

EXERCISE 10.4

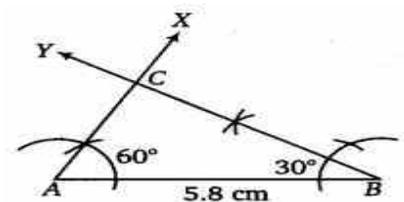**Q1. Construct ΔABC, given m∠A = 60°, m∠B = 30° and AB = 5.8 cm**.
Solution: Steps of construction
1. Draw a line segment AB = 5.8 cm.
2. Draw ∠BAX = 60°.
3. Draw ∠ABY, with Y on the same side of AB such that ∠ABY=30°.
    Let AX and BY interest at C.
    Then, ΔABC is the required triangle.

Q2. Construct ΔPQR if PQ = 5cm, m ∠PQR = 105° and m ∠QRP = 40°
Solution: Here, we are given the side PQ, ∠Q and ∠R. But to draw the triangle, we require ∠P
We know that the sum of the angles of a triangle is 180°.

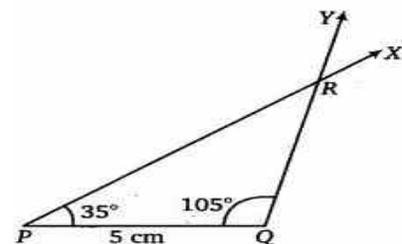∴ ∠PQR + ∠QRP + ∠RPQ = 180°=> 105°+ 40°+ ∠RPQ = 180°

=> 145° + ∠RPQ = 180°

=> ∠RPQ = 180°– 145⁰

=> ∠RPQ = 35°

Hence, the measures of ∠RPQ is 35°.

The content is prepared at home.

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. ∠LPQ = 35°.

3. At point Q, draw a ray M to making an angle of 40° i.e. ∠MQP = 105°.

4. Now the two rays PL and QM intersect at the point R.

Then, ΔPQR 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.

Solution: From the question it is given that, EF = 7.2 cm, ∠E = 110°, ∠F = 80°

Now we have to check whether it is possible to construct ΔDEF from the given values.

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

Then, ∠D + ∠E + ∠F = 180 °=>∠D + 110°+ 80°= 180°

$$=> \angle D + 190° = 180°$$

$$=> \angle D = 180° - 190°$$

$$=> \angle D = -10°$$

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

EXERCISE 10.5

1.Construct the. right-angled ΔPQR, where m∠Q = 90°,QR = 8 cm and PR=10 cm.
Solution: Steps of Construction
1. Draw a line segment QR = 8 cm.
2.Draw ∠XQR = 90°.
3. With R as centre and radius =10 cm, draw an arc to intersect ray QX at P.
4. Join RP to obtain the required ΔPQR
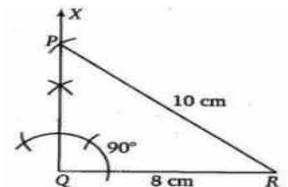
2. Construct an isosceles right-angled triangle ABC, where m∠ACB = 90° and AC = 6 cm.
Solution: Steps of Constructions
1. Draw a line segment CB = 6 cm (∵ CB = AC = 6 cm)
2. Draw ∠BCX = 90°.
3. With C as centre and radius = 6 cm, draw an arc to intersect ray CX at A.
4. Join BA to obtain the required triangle ABC.
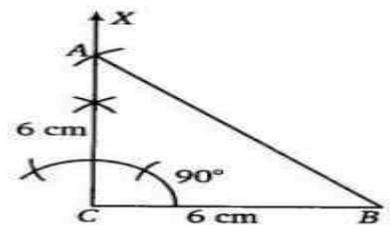
Miscellaneous questions

Below are given the measures of certain sides and angles of triangles. Identify those which cannot be constructed and, say why you cannot construct them. Construct rest of the triangles
1) In ΔABC, m∠ A = 85°, m∠ B = 115° and AB = 5 cm
Solution: We know that 'Sum of the measures of three angles of a triangle is 180°.'
∴ m∠ A + m∠ B + m∠ C = 180°
Here, m∠ A + m∠ B = 85° + 115° = 200°
Since, m∠ A + m∠ B > 180°
∴ The construction of ΔABC is not possible.
4) In ΔLMN, m∠ L = 60°, m∠ N = 120° and LM = 5 cm
Solution: We know that 'Sum of the measures of three angles of a triangle is 180°.'

The content is prepared at home.

∴ m∠ L + m∠ M + m∠ N = 180°

Here, m∠ L + m∠ N = 60° + 120° = 180°

Since, m∠ L + m∠ M = 180°=> The construction of ΔLMN is not possible

5) In ΔABC, BC = 2 cm, AB = 4cm, and AC = 2 cm

Solution: We know that 'The sum of the lengths of any two sides of a triangle is greater than the length of the third side.'

Here, AC + BC = 2cm + 2cm = 4 cm

So, AC + BC is not greater than AB.

∴ The construction of ΔABC is not possible

ASSIGNMENT: Ex 10.5 Q3 and Remaining questions of miscellaneous exercise.

The content is prepared at home.