Practical Geometry: Exercise 10.2

Q.1 Construct ΔXYZ in which XY = 4.5 cm, YZ = 5 cm and ZX = 6 cm. *Sol*:



Construction Steps:

1. Firstly, draw a line segment YZ of length 5 cm with help of ruler and pencil.

2. Now take point Z as a center and draw an arc of radius 6 cm with help of compass.

3. Also take point Y as a center and draw another arc of radius 4.5 cm with help of compass, which intersects the previous arc at point X.

4. Now, join XY and XZ.

Thus, ΔXYZ is the required triangle.





Construction Steps:

1. Firstly, draw a line segment PQ of length 5.5 cm with help of pencil and ruler.

2. Now, take P as a center and draw an arc of radius 5.5 cm with help of compass.

3. Also take point Q as a center and draw another arc of radius 5.5 cm radius 5.5 cm, which intersect the previous arc at point R.

4. Now, Join PR and QR.

Thus, ΔPQR is the required equilateral triangle.

Q.3 Draw \triangle PQR with PQ = 4 cm, QR = 3.5 cm and PR = 4 cm. What type of triangle is this? *Sol:*



Steps of construction:

- 1. Firstly, draw a line segment QR of length 3.5 cm with help of pencil and ruler.
- 2. Now, take the point Q as a center and draw an arc of radius 4 cm with help of compass.

3. Also take point R as a center and draw another arc of radius 4 cm with help of compass which intersects the previous arc at point P.

4. Now, join PQ and PR.

Thus, ΔPQR is the required triangle.

In this triangle, two sides are equal. So, it isosceles triangle.



Q.4 Construct ∆ABC such that AB = 2.5 cm, BC = 6 cm and AC = 6.5 cm. Measure ∠B. *Sol:*

Construction steps:

1. Firstly, draw a line segment BC of length 6 cm with help of pencil and ruler.

2. Now, take point B as a center and draw an arc of radius 2.5 cm with help of compass.

3. Also take point C as a center and draw another arc radius 6.5 cm with help of compass, which intersects the previous arc at point A.

4. Now, join AB and AC.

Thus, ΔABC is the required triangle.

In triangle ABC,

We apply the Pythagoras theorem,

 $AB^{2} + BC^{2} = AC^{2}$ $(2.5)^{2} + (6)^{2} = (6.5)^{2}$ 6.25 + 36 = 42.25 42.25 = 42.25

Thus, $\triangle ABC$ is the right angle triangle.

If we measure the angle B of triangle by protractor, then $\angle B = 90^{\circ}$.