

Exercise 11.2

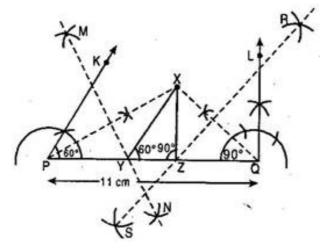
Q4. Construct a triangle XYZ in which \angle Y = 30° , \angle Z = 90° and XY + YZ + ZX = 11 cm.

Ans. Given: Base angles $\angle Y = 30^{\circ}$ and $\angle Z = 00^{\circ}$

 90° and XY + YZ + ZX = 11 cm.

To construct: ∆XYZ

Steps of construction:



- (a) Draw a line segment PQ = 11 cm.
- **(b)** Draw \angle KPQ = 30° and \angle LQP = 90°
- (c) Bisect the \angle KPQ and \angle LQP. Let these intersect at point X.
- (d) Draw perpendicular bisectors, MN of PX and RS of XQ.
- (e) Let MN intersects PQ at Y and RS intersects PQ at Z.
- (f) Join XY and XZ.

Then XYZ is the required triangle.

Justification:

Y lies on perpendicular bisector MN of PX.

$$\therefore$$
 PY = XY and similarly QZ = XZ

This gives XY + YZ + XZ = PY + YZ + QZ = PQ = 11 cm

Again
$$\angle YXP = \angle XPY$$
 [Since $XY = PY$]

$$\Rightarrow$$
 \angle XYZ = \angle YXP + \angle XPY = $2\angle$ XPY = \angle KPQ

$$\Rightarrow \angle XYZ = 30^{\circ}$$

Similarly,
$$\angle XZY = \angle LQP$$

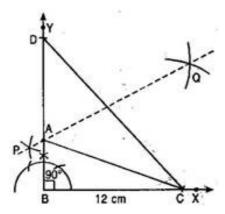
$$\Rightarrow \angle XZY = 90^{\circ}$$

Q5. Construct a right triangle whose base is 12 cm and sum of its hypotenuse and other side is 18 cm.

Ans. Given: Base BC = 12 cm and AB + AC = 18 cm.

To construct: A right angled triangle ABC right angled at B.

Steps of construction:



- (a) Draw a ray BX and cut off a line segment BC = 12 cm from it.
- **(b)** Draw an angle XBY = 90° .
- (c) From BY cut off a line segment BD = 18 cm.
- (d) Join CD.
- **(e)** Draw the perpendicular bisector of CD intersecting BD at A.
- (f) Join AC.

Then ABC is the required right angled triangle.

Justification:

A lies on the perpendicular bisector of CD.

$$AC = AD$$

And then AB = BD - AD

$$\Rightarrow$$
 AB = BD -AC

$$\Rightarrow$$
 AB + AC = BD = 18 cm.

********* END *******