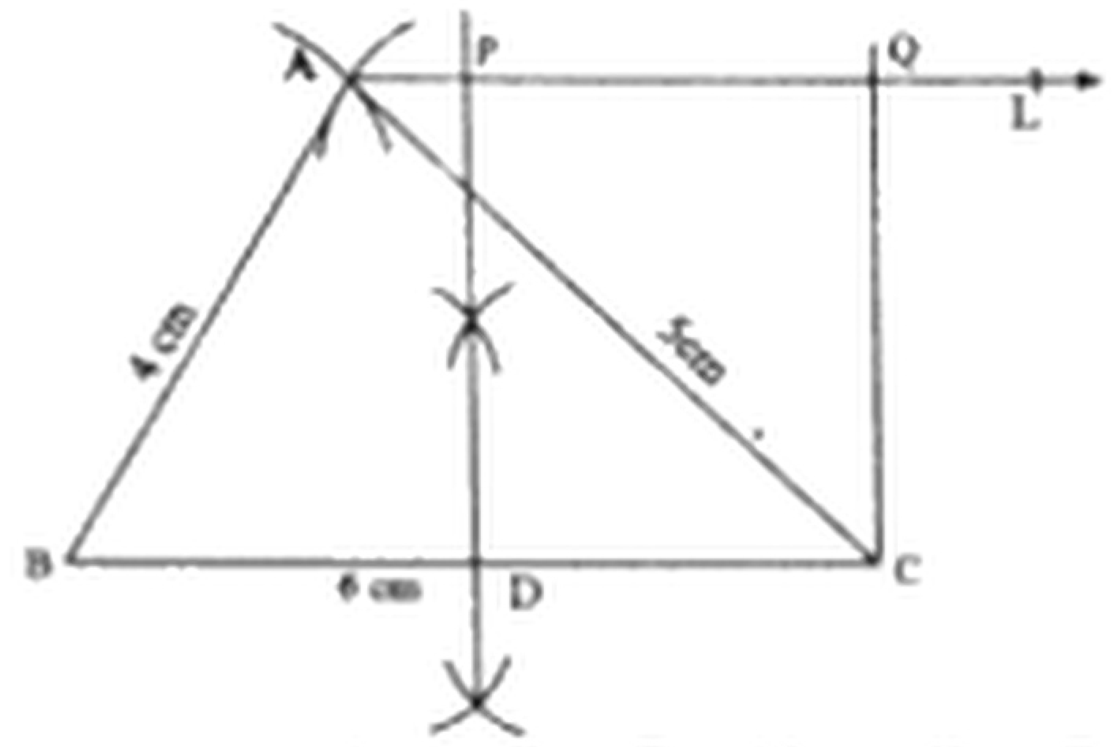
EXERCISE 17.4

Q1. Construct a $\triangle$ with sides 4 cm, 5 cm and 6 cm and construct a rectangle having its area equal to that of the Δ. Measure its diagonals. Are they equal?

Solution:



Construction:

(i) Draw a line segment m$\overline{BC}$ = 6 cm.

(ii) With center at the point B and radius as 4 cm draw an arc.

(iii) With center at the point C with radius 5 cm draw w another arc cut the first arc at the point A.

(iv) Join $\overline{AB}$ and $\overline{AC}$ to complete the ΔABC.

(v) Bisect $\overline{BC}$ at P.

(vi) Draw $\overrightarrow{AL} \parallel \overline{BC}.$

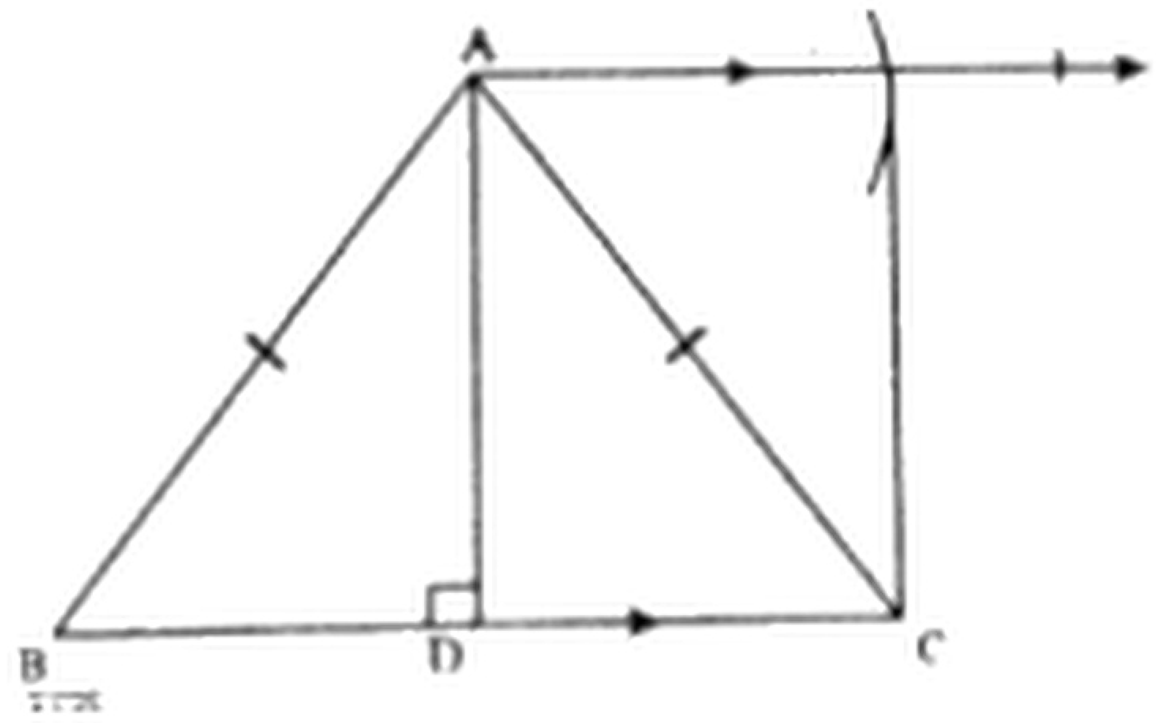
(vii) Draw perpendicular $\overline{DP}$ to meet $\overline{AL}$ at P.

(viii) Cut off $\overline{PQ} = \overline{DC}$

(ix) Join Q to C.

Then PQCD is the required rectangle. Measure the diagonal $\overline{DQ}$ =4.5 cm

Q2. Transform isosceles $\triangle$ into rectanale.



Construction:

(i) Draw $\overline{AD} \perp \overline{BC}$.

(ii) Draw $\overline{AE} \parallel \overline{DC}$.

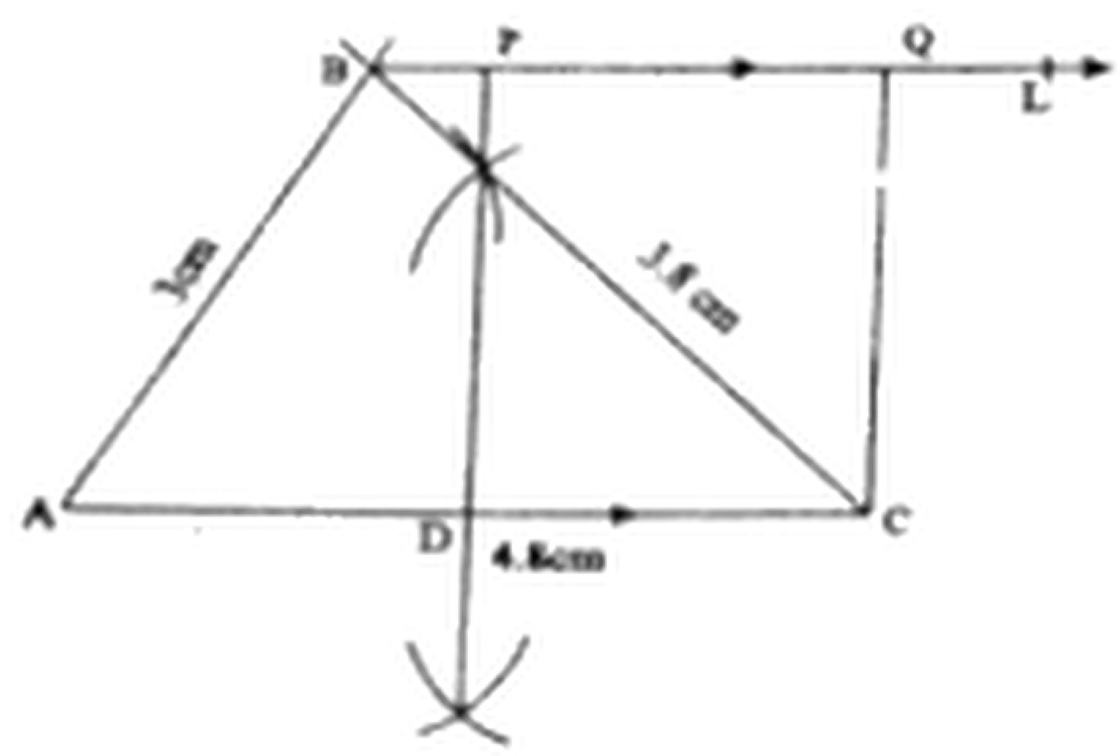
(iii) Cut off m$\overline{AE}$ = m$\overline{DC}$.

(iv) Join $\overline{EC}$.

Then ADCE is the required rectangle.

Q3. Construct ΔABC such that m$\overline{AB}$ = 3cm, m$\overline{BC}$ = 3.8 cm, m$\overline{AC}$ = 4.8 cm. Construct a rectangle equal in area to the ΔABC, and measure its sides.

Solution:



Construction

(i) Draw a line segment m$\overline{AC}$ = 4.8cm

(ii) With center at A and radius 3 cm draw an arc.

(iii) With center at C and radius 3.8 cm draw another arc to cut the first arc at B.

(iv) Join $\overline{AB}$ and $\overline{BC}$ to complete the ΔABC.

(vi) Draw $\overline{DP}$ the perpendicular bisector of $\overline{AC}$ to meet $\overline{BL}$ at P.

(vii) Cut off m$\overline{PQ}$ = m$\overline{DC}$.

(viii) Join Q to C.

(ix) Then PQCD is the required rectangle.

(x) Measure the sides of the rectangle, m$\overline{DC}$ = 2.4 cm and m$\overline{DP}$ = 2.3 cm.