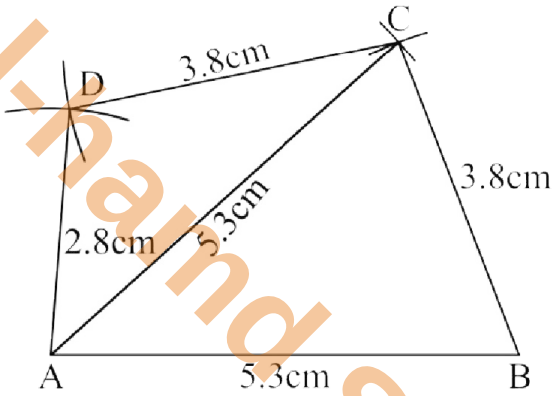
Exercise 17.3

Q.1

(i) **Construction a quadrilateral ABCD, having**

$m\overline{AB} = \overline{AC} = 5.3cm \quad m\overline{BC} = m\overline{CD} = 3.8cm$

and $m\overline{AD} = 2.8cm$ **.**



Construction:

i. Draw a line segment $\overline{AB} = 5.3cm$.

ii. Taking B as centre draw an arc of radius $\overline{BC} = 3.8cm$.

iii. Taking A as centre draw an arc of radius $\overline{AC} = 5.3cm$ to cut at C.

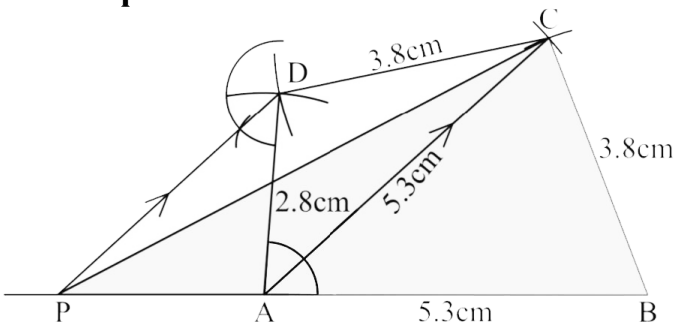
iv. Taking C as centre draw an arc of radius $\overline{CD} = 3.8cm$.

v. Taking A as centre draw an arc of radius $\overline{AB} = 2.8cm$ to cut at D.

vi. Join B to C, C to D, A to C and A to D.

ABCD is the required quadrilateral.

(ii) **On the side $\overline{BC}$ construct a Δequal in area to the quadrilateral ABCD.**



Construction:

i. Join A to C.

ii. Through D draw $\overline{DP} \| \overline{CA}$ meeting $\overline{BA}$ produced at P.

iii. Join $\overline{PC}$.

iv. Then PBC is required triangle.

$\Delta s\, APC, ADC$ stand on the same base AC and same parallels AC and PD.

Hence

$\Delta APC = \Delta ADC$

$\Delta APC + \Delta ABC = \Delta ADC + \Delta ABC$

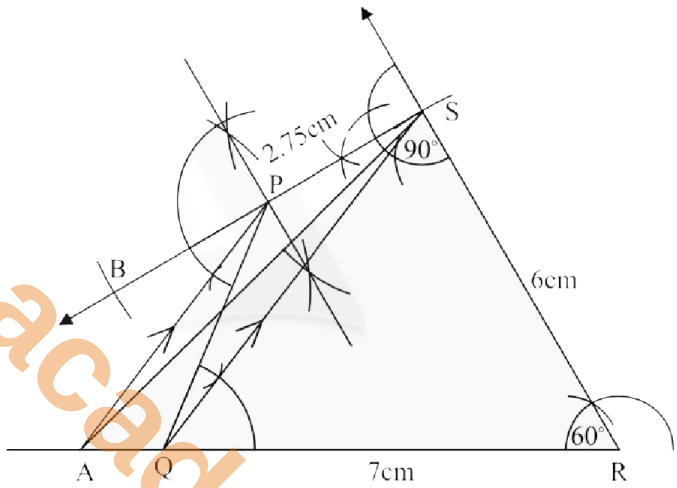
or ΔPBC =quadrilateral ABCD

Q.2 **Construct a Δ equal to the quadrilateral PQRS, having**

$m\overline{QR} = 7cm \quad m\overline{RS} = 6cm$

$m\overline{SP} = 2.75cm \quad m\angle QRS = 60°$

and $m\angle RSP = 90°$ **.**



Construction:

i. Draw a line segment $\overline{QR} = 7cm$.

ii. At point R draw an angle of 60°.

iii. Taking R as center draw an arc of radius of 6cm to cut at S.

iv. At point S draw an angle 90°.

v. Taking S as centre draw an arc of radius of 5.5cm, cutting the terminal side of 90° at point B.

vi. Find the mid point of $m\overline{SB}$ at point P.

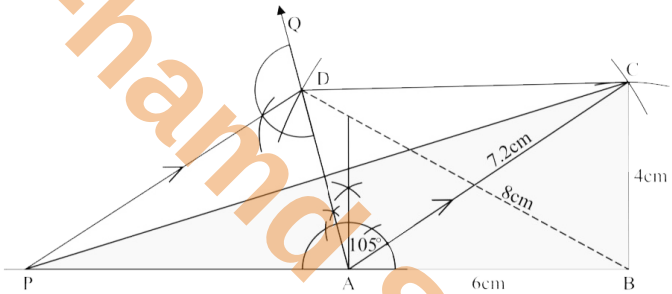
vii. Join P to Q.

viii. Draw $\overline{PA}$ parallel to $\overline{SQ}$

ix. Join A to S.

x. ΔARS is required triangle equal in area to quadrilateral PQRS.

Q.3 Construct a Δequal in area to quadrilateral ABCD having $m\overline{AB} = 6cm$ $m\overline{BC} = 4cm$, $\overline{AC} = 7.2cm$ $m\angle BAD = 105^\circ$ **and** $m\overline{BD} = 8cm$ **.**



Construction:

i. Draw a line segment $\overline{AB} = 6cm$.

ii. Taking A as centre draw an arc of radius 7.2cm.

iii. Taking B as centre draw an arc of radius $4cm$ to cut at C. Join C to A and C to B.

iv. Taking A as centre make an angle $\angle QAB = 105^\circ$.

v. Taking B as centre make an arc of radius 8cm to cut at D point.

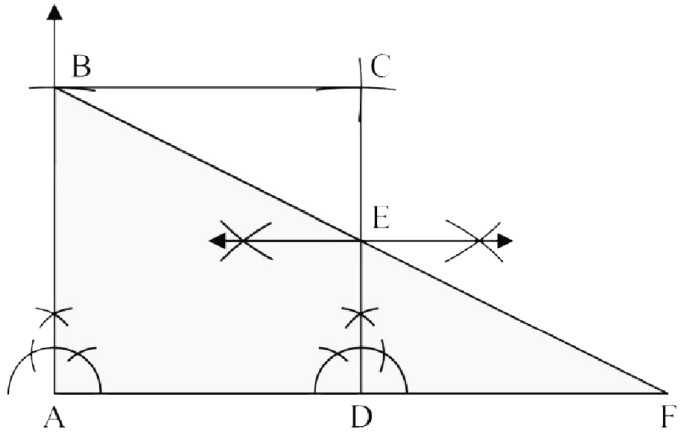
vi. Join D to C to complete the ABCD quadrilateral.

vii. Draw $\overline{DP} \| \overline{CA}$ o meet $\overrightarrow{BA}$ produced at P.

viii. Join C to P.

Thus ΔPBC is the required triangle.

Q.4 Construct a right angled triangle equal in area to given square.



Construction:

Let measurement of each side of square is 3.8cm.

i. Construct a square ABCD with each side 3.8cm long.

ii. Bisect $\overline{CD}$ at E .

iii. Join B to E and produced it to meet $\overline{AD}$ produced in F.

ΔABF is required triangle equal in area to square ABCD.