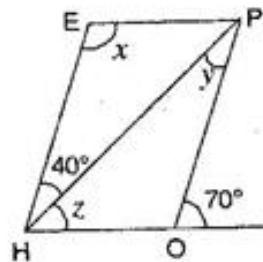**Q7.** The adjacent figure HOPW is a parallelogram. Find the angle measures x, y and z. State the properties you use to find them.

$\angle HOP + 70° = 180°$

Ans: Here $\angle HOP = 180° - 70° = 110°$

[Angles of linear pair]

And $\angle E = \angle HOP$

[Opposite angles of a ‖gm are equal]

$\Rightarrow x = 110°$

$\angle PHE = \angle HPO$

[Alternate angles]

$\therefore y = 40°$

Now $\angle EHO = \angle O = 70°$

[Corresponding angles]
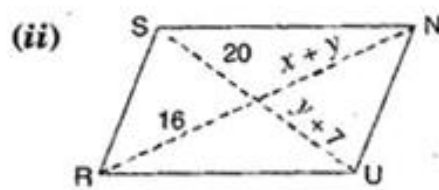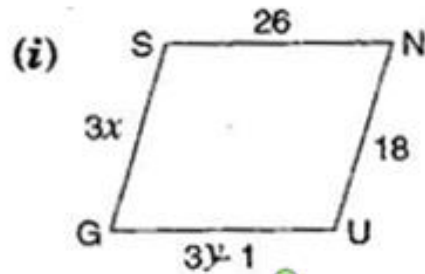
$\Rightarrow 40° + z = 70°$

$\Rightarrow z = 70° - 40° = 30°$

Hence, $x = 110°$, $y = 40°$ and $z = 30°$

Q8. The following figures GUNS and RUNS are parallelograms. Find x and y. (Lengths are in cm)

(i)

(ii)

Ans: (i) In parallelogram GUNS,

GS = UN

[Opposite sides of parallelogram are equal]

$\Rightarrow 3x = 18$

$\Rightarrow x = \dfrac{18}{3} = 6$ cm

Also GU = SN

[Opposite sides of parallelogram are equal]

$\Rightarrow 3y - 1 = 26$

$\Rightarrow 3y = 26 + 1$

$\Rightarrow 3y = 27$

$\Rightarrow y = \dfrac{27}{3} = 9 \text{ cm}$

Hence, $x = 6$ cm and $x = 9$ cm.

(ii) In parallelogram RUNS,

$y + 7 = 20$

[Diagonals of ∥gm bisects each other]

$\Rightarrow y = 20 - 7 = 13$ cm

And $x + y = 16$
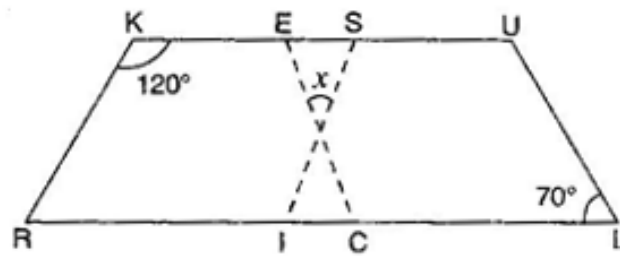
$\Rightarrow x + 13 = 16$

$\Rightarrow x = 16 - 13$

$\Rightarrow x = 3$ cm

Hence, $x = 3$ cm and $y = 13$ cm.

Q9. In the figure, both RISK and CLUE are parallelograms. Find the value of x.

Ans: In parallelogram RISK,

$\angle RIS = \angle K = 120°$

[Opposite angles of a $\parallel$ gm are equal]

$\angle m + 120° = 180°$ [Linear pair]

$\Rightarrow \angle m = 180° - 120° = 60°$

And $\angle ECI = \angle L = 70°$

[Corresponding angles]

$\Rightarrow m + n + \angle ECI = 180°$

[Angle sum property of a triangle]

$\Rightarrow 60° + n + 70° = 180°$

$\Rightarrow 130° + n = 180°$
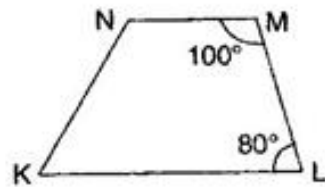
$\Rightarrow n = 180° - 130° = 50°$

Also $x = n = 50°$

[Vertically opposite angles]

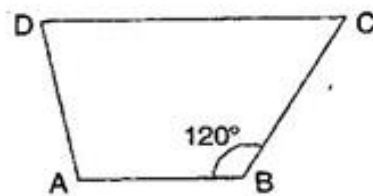**Q10.** Explain how this figure is a trapezium. Which is its two sides are parallel?

Ans: Here, $\angle M + \angle L = 100° + 80° = 180°$

[Sum of interior opposite angles is $180°$]

$\therefore$ NM and KL are parallel.

Hence, KLMN is a trapezium.

Q11. Find $m\angle C$ in figure , if $\overline{AB} \parallel \overline{DC}$.
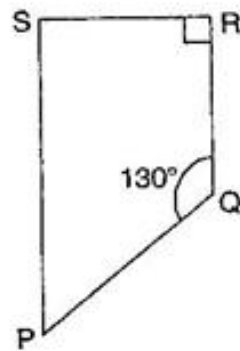

Ans: Here, $\angle B + \angle C = 180°$

$[\because \overline{AB} \parallel \overline{DC}]$

Q12. Find the measure of $\angle P$ and $\angle S$ if $\overline{SP} \parallel \overline{RQ}$ in given figure.

(If you find $m\angle R$ is there more than one method to find $m\angle P$)

Ans: Here, $\angle P + \angle Q = 180°$

[Sum of co-interior angles is $180°$]

$\Rightarrow \angle P + 130° = 180°$

$\Rightarrow \angle P = 180° - 130°$

$\Rightarrow \angle P = 50°$

$\because \angle R = 90°$ [Given]

$\therefore \angle S + 90° = 180°$

$\Rightarrow \angle S = 180° - 90°$

$\Rightarrow \angle S = 90°$

Yes, one more method is there to find $\angle P$.

$\angle S + \angle R + \angle Q + \angle P = 360°$

[Angle sum property of quadrilateral]

$\Rightarrow 90° + 90° + 130° + \angle P = 360°$

$\Rightarrow 310° + \angle P = 360°$

$\Rightarrow \angle P = 360° - 310°$

$\Rightarrow \angle P = 50°$

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