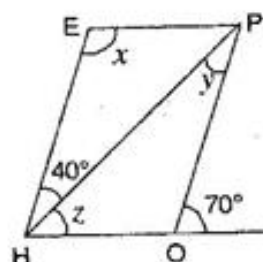




**Q7.** The adjacent figure HOPW is a parallelogram. Find the angle measures  $x$ ,  $y$  and  $z$ . State the properties you use to find them.



$$\angle HOP + 70^\circ = 180^\circ$$

**Ans:** Here  $\angle HOP = 180^\circ - 70^\circ = 110^\circ$

[Angles of linear pair]

And  $\angle E = \angle HOP$

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

$$\Rightarrow x = 110^\circ$$

$$\angle PHE = \angle HPO$$

[Alternate angles]

$$\therefore y = 40^\circ$$

Now  $\angle EHO = \angle O = 70^\circ$

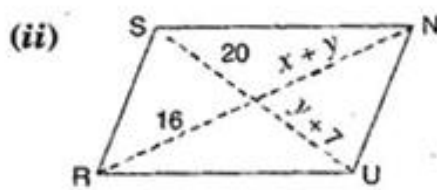
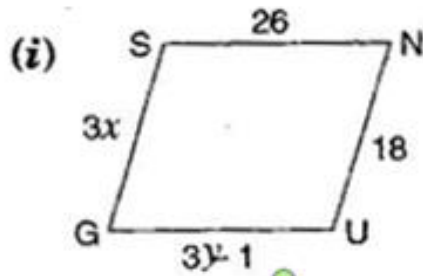
[Corresponding angles]

$$\Rightarrow 40^\circ + z = 70^\circ$$

$$\Rightarrow z = 70^\circ - 40^\circ = 30^\circ$$

Hence,  $x = 110^\circ$ ,  $y = 40^\circ$  and  $z = 30^\circ$

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



**Ans:** (i) In parallelogram GUNS,

$$GS = UN$$

[Opposite sides of parallelogram are equal]

$$\Rightarrow 3x = 18$$

$$\Rightarrow x = \frac{18}{3} = 6 \text{ cm}$$

Also  $GU = SN$

[Opposite sides of parallelogram are equal]

$$\Rightarrow 3y - 1 = 26$$

$$\Rightarrow 3y = 26 + 1$$

$$\Rightarrow 3y = 27$$

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

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

(ii) In parallelogram RUNS,

$$y + 7 = 20$$

[Diagonals of  $\parallel$  gm bisect each other]

$$\Rightarrow y = 20 - 7 = 13 \text{ cm}$$

And  $x + y = 16$

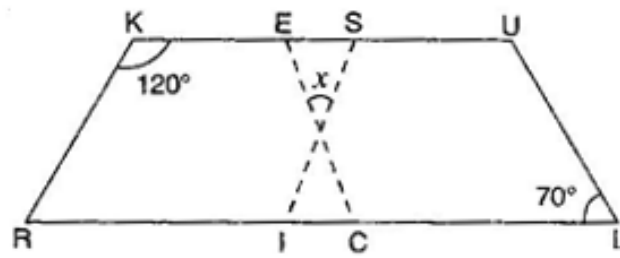
$$\Rightarrow x + 13 = 16$$

$$\Rightarrow x = 16 - 13$$

$$\Rightarrow x = 3 \text{ cm}$$

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,

$$\angle RIS = \angle K = 120^\circ$$

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

$$\angle m + 120^\circ = 180^\circ \text{ [Linear pair]}$$

$$\Rightarrow \angle m = 180^\circ - 120^\circ = 60^\circ$$

And  $\angle ECI = \angle L = 70^\circ$

[Corresponding angles]

$$\Rightarrow m + n + \angle ECI = 180^\circ$$

[Angle sum property of a triangle]

$$\Rightarrow 60^\circ + n + 70^\circ = 180^\circ$$

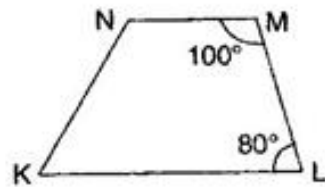
$$\Rightarrow 130^\circ + n = 180^\circ$$

$$\Rightarrow n = 180^\circ - 130^\circ = 50^\circ$$

Also  $x = n = 50^\circ$

[Vertically opposite angles]

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



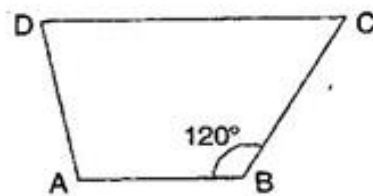
**Ans:** Here,  $\angle M + \angle L = 100^\circ + 80^\circ = 180^\circ$

[Sum of interior opposite angles is  $180^\circ$ ]

$\therefore$  NM and KL are parallel.

Hence, KLMN is a trapezium.

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

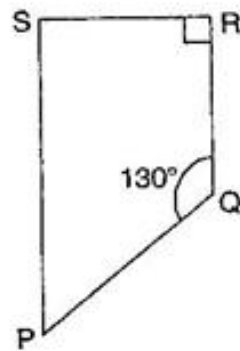


**Ans:** Here,  $\angle B + \angle C = 180^\circ$

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

**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,  $\angle P + \angle Q = 180^\circ$

[Sum of co-interior angles is  $180^\circ$ ]

$$\Rightarrow \angle P + 130^\circ = 180^\circ$$

$$\Rightarrow \angle P = 180^\circ - 130^\circ$$

$$\Rightarrow \angle P = 50^\circ$$

$$\because \angle R = 90^\circ \text{ [Given]}$$

$$\therefore \angle S + 90^\circ = 180^\circ$$

$$\Rightarrow \angle S = 180^\circ - 90^\circ$$

$$\Rightarrow \angle S = 90^\circ$$

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

$$\angle S + \angle R + \angle Q + \angle P = 360^\circ$$

[Angle sum property of quadrilateral]

$$\Rightarrow 90^\circ + 90^\circ + 130^\circ + \angle P = 360^\circ$$

$$\Rightarrow 310^\circ + \angle P = 360^\circ$$

$$\Rightarrow \angle P = 360^\circ - 310^\circ$$

$$\Rightarrow \angle P = 50^\circ$$

\*\*\*\*\* END \*\*\*\*\*