



Understanding shapes-III special types of quadrilaterals Ex 17.1 Q6

**Answer :**

In the parallelogram RISK :

$$\angle ISK + \angle RKS = 180^\circ \text{ (sum of adjacent angles of a parallelogram is } 180^\circ)$$

$$\angle ISK = 180^\circ - 120^\circ = 60^\circ$$

Similarly, in parallelogram CLUE :

$$\angle CEU = \angle CLU = 70^\circ \text{ (opposite angles of a parallelogram are equal)}$$

In the triangle :

$$x + \angle ISK + \angle CEU = 180^\circ$$

$$x = 180^\circ - (70^\circ + 60^\circ)$$

$$x = 180^\circ - (70^\circ + 60^\circ) = 50^\circ$$

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**Answer :**

Opposite angles of a parallelogram are congruent.

$$\therefore (3x - 2)^\circ = (50 - x)^\circ$$

$$3x^\circ - 2^\circ = 50^\circ - x^\circ$$

$$3x^\circ + x^\circ = 50^\circ + 2^\circ$$

$$4x^\circ = 52^\circ$$

$$x^\circ = 13^\circ$$

Putting the value of  $x$  in one angle :

$$3x^\circ - 2^\circ = 39^\circ - 2^\circ$$

$$= 37^\circ$$

Opposite angles are congruent :

$$\therefore 50 - x^\circ$$

$$= 37^\circ$$

Let the remaining two angles be  $y$  and  $z$ .

Angles  $y$  and  $z$  are congruent because they are also opposite angles.

$$\therefore y = z$$

The sum of adjacent angles of a parallelogram is equal to  $180^\circ$ .

$$\therefore 37^\circ + y = 180^\circ$$

$$y = 180^\circ - 37^\circ$$

$$y = 143^\circ$$

So, the angles measure are :

$$37^\circ, 37^\circ, 143^\circ \text{ and } 143^\circ$$

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**Answer :**

Two adjacent angles of a parallelogram add up to  $180^\circ$ .

Let  $x$  be the angle.

$$\therefore x + \frac{2x}{3} = 180^\circ$$

$$\frac{5x}{3} = 180^\circ$$

$$x = 72^\circ$$

$$\frac{2x}{3} = \frac{2 \times 72^\circ}{3} = 108^\circ$$

Thus, two of the angles in the parallelogram are  $108^\circ$  and the other two are  $72^\circ$ .

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