

*Note- Before attempting the question and answers you must check the link given below which will help you understand the chapter thoroughly.

<https://youtu.be/yh8xXT-m6zU>

You can download the assignment or if you do not have the facility to get printout then you can ask your ward to copy the assignment in a simple notebook and must do question and answers in the notebook.

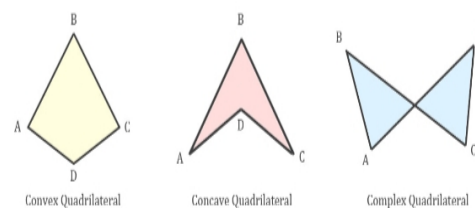
NOTES:

Types of Quadrilaterals

Quadrilaterals appear in four different classifications:

- 1 **Convex** -- Each interior angle is less than 180° and the two diagonals are inside the closed space of the quadrilateral
- 2 **Concave** -- One interior angle is greater than 180° and one diagonal lies outside the shape
- 3 **Simple** -- The quadrilateral does not cross its sides (it is not self-intersecting)
- 4 **Complex** -- The quadrilateral has self-intersecting sides

Examples of Quadrilaterals



Interior angles of all simple quadrilateral (convex or concave) add up to 360° .

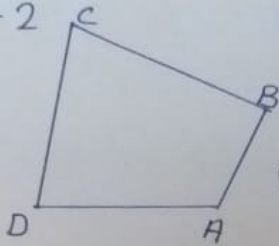
$\angle A + \angle B + \angle C + \angle D = 360^\circ$ $\angle E + \angle F + \angle G + \angle H = 360^\circ$

The diagram features a cartoon character on the left pointing towards the text and two quadrilaterals. The first is a purple convex quadrilateral with vertices A, B, C, and D. The second is a blue concave quadrilateral with vertices E, F, G, and H. Red arcs indicate the interior angles at each vertex.

Worksheet:

Q-1 Three angles of a quadrilateral are 54° , 80° , 116° . Find the fourth angle.

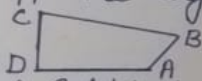
Q-2



(i) How many pairs of adjacent sides are there?
Name them.

(ii) How many pairs of opposite sides are there?
Name them.

Q-3 Find the pairs of adjacent angles and opposite angles in the given figure.



Q-4 A field is in a shape of quadrilateral whose angles are in the ratio $2:3:5:8$. Find the measure of angles.

Q-5 The angles of a quadrilateral are in the ratio $1:2:3:4$. What are the measures of the four angles?

Q-6 In a quadrilateral ABCD the measure of the three angles A, B and C of the quadrilateral are 110° , 70° and 80° respectively. Find the measure of the . . . angle.

Q-7 Draw a rough sketch of a quadrilateral KLMN state.

(a) two pairs of opposite sides

(b) two pairs of opposite angles.

Answers

① Let fourth angle be $= x$
 $54^\circ + 80^\circ + 116^\circ + x = 360^\circ$ (angle sum property)

$$250^\circ + x = 360^\circ$$

$$x = 360^\circ - 250^\circ$$

$$x = 110^\circ$$

② (i) 4 pairs (AB, BC) (BC, CD) (CD, DA) (DA, AB)

(ii) 2 pairs (AB, DC) (AD, BC)

③ (i) adjacent angles (LA, LB) (LB, LC)
(LC, LD) and (LD, LA)

(ii) opposite angles (LA, LC) (LB, LD)

④ Let the angles be $2x, 3x, 5x, 8x$

$$\therefore 2x + 3x + 5x + 8x = 360^\circ$$

$$18x = 360^\circ$$

$$x = 20^\circ$$

So angles are $2 \times 20^\circ = 40^\circ$, $3 \times 20^\circ = 60^\circ$
 $5 \times 20^\circ = 100^\circ$, $8 \times 20^\circ = 160^\circ$

⑤ Let the angles be $x, 2x, 3x, 4x$

$$x + 2x + 3x + 4x = 360^\circ$$

$$10x = 360^\circ$$

$$x = 36^\circ$$

So angles are 36° , $2 \times 36^\circ = 72^\circ$

$$3 \times 36^\circ = 108^\circ$$

$$4 \times 36^\circ = 144^\circ$$

⑥ The measure of $A = 110^\circ$

The measure of $B = 70^\circ$

The measure of $C = 80^\circ$

$$A + B + C + D = 360^\circ$$

$$\angle D = 360^\circ - (110^\circ + 70^\circ + 80^\circ)$$

$$\angle D = 360^\circ - 260^\circ$$

$$\angle D = 100^\circ$$

⑦

(a) \overline{KL} and \overline{MN}

\overline{KN} and \overline{ML}

(b) $\angle K$ and $\angle M$

$\angle L$ and $\angle N$