Exercise VSAQs

Question 1: In a parallelogram ABCD, write the sum of angles A and B.

Solution:
In parallelogram ABCD, adjacent angles of a parallelogram are supplementary.

Therefore, \( \angle A + \angle B = 180^\circ \)

Question 2: In a parallelogram ABCD, if \( \angle D = 115^\circ \), then write the measure of \( \angle A \).

Solution:
In a parallelogram ABCD,
\( \angle D = 115^\circ \) (Given)

Since, \( \angle A \) and \( \angle D \) are adjacent angles of parallelogram.

We know, adjacent angles of a parallelogram are supplementary.

\( \angle A + \angle D = 180^\circ \)
\( \angle A = 180^\circ - 115^\circ = 65^\circ \)

Measure of \( \angle A \) is 65°.

Question 3: PQRS is a square such that PR and SQ intersect at O. State the measure of \( \angle POQ \).

Solution:
PQRS is a square such that PR and SQ intersect at O. (Given)

We know, diagonals of a square bisect each other at 90 degrees.

So, \( \angle POQ = 90^\circ \)

Question 4: In a quadrilateral ABCD, bisectors of angles A and B intersect at O such that \( \angle AOB = 75^\circ \), then write the value of \( \angle C + \angle D \).

Solution:
\( \angle AOB = 75^\circ \) (given)
In a quadrilateral ABCD, bisectors of angles A and B intersect at O, then

\[ \angle AOB = \frac{1}{2} (\angle ADC + \angle ABC) \]

or \[ \angle AOB = \frac{1}{2} (\angle D + \angle C) \]

By substituting given values, we get

\[ 75^\circ = \frac{1}{2} (\angle D + \angle C) \]

or \[ \angle C + \angle D = 150^\circ \]

**Question 5: The diagonals of a rectangle ABCD meet at O. If \( \angle BOC = 44^\circ \), find \( \angle OAD \).**

**Solution:**

ABCD is a rectangle and \( \angle BOC = 44^\circ \) (given)

\( \angle AOD = \angle BOC \) (vertically opposite angles)

\( \angle AOD = \angle BOC = 44^\circ \)

\( \angle OAD = \angle ODA \) (Angles facing same side)

and OD = OA

Since sum of all the angles of a triangle is 180°, then

So, \( \angle OAD = \frac{1}{2} (180^\circ - 44^\circ) = 68^\circ \)

**Question 6: If PQRS is a square, then write the measure of \( \angle SRP \).**

**Solution:**

PQRS is a square.

=> All side are equal, and each angle is 90° degrees and diagonals bisect the angles.

So, \( \angle SRP = \frac{1}{2} (90^\circ) = 45^\circ \)

**Question 7: If ABCD is a rectangle with \( \angle BAC = 32^\circ \), find the measure of \( \angle DBC \).**

**Solution:**

ABCD is a rectangle and \( \angle BAC = 32^\circ \) (given)
We know, diagonals of a rectangle bisects each other.
\[ AO = BO \]

\[ \angle DBA = \angle BAC = 32^\circ \] (Angles facing same side)

Each angle of a rectangle = 90 degrees

So, \[ \angle DBC + \angle DBA = 90^\circ \]

or \[ \angle DBC + 32^\circ = 90^\circ \]

or \[ \angle DBC = 58^\circ \]

**Question 8:** If ABCD is a rhombus with \( \angle ABC = 56^\circ \), find the measure of \( \angle ACD \).

**Solution:**

In a rhombus ABCD, 
\[ \angle ABC = 56^\circ \]

So, \[ \angle BCD = 2 (\angle ACD) \] (Diagonals of a rhombus bisect the interior angles)

or \[ \angle ACD = 1/2 (\angle BCD) \] .....(1)

We know, consecutive angles of a rhombus are supplementary.

\[ \angle BCD + \angle ABC = 180^\circ \]

\[ \angle BCD = 180^\circ - 56^\circ = 124^\circ \]

Equation (1) => \[ \angle ACD = 1/2 x 124^\circ = 62^\circ \]

**Question 9:** The perimeter of a parallelogram is 22 cm. If the longer side measure 6.5 cm, what is the measure of shorter side?

**Solution:**

Perimeter of a parallelogram = 22 cm. (Given)

Longer side = 6.5 cm

Let \( x \) be the shorter side.

Perimeter = \( 2x + 2 \times 6.5 \)

\[ 22 = 2x + 13 \]

\[ 2x = 22 - 13 = 9 \]

or \( x = 4.5 \)

Measure of shorter side is 4.5 cm.
Question 10: If the angles of a quadrilateral are in the ratio 3:5:9:13, then find the measure of the smallest angle.

Solution:

Angles of a quadrilateral are in the ratio 3 : 5 : 9 : 13 (Given)

Let the sides are 3x, 5x, 9x, 13x

We know, sum of all the angles of a quadrilateral = 360°

3x + 5x + 9x + 13x = 360°

30x = 360°

x = 12°

Length of smallest angle = 3x = 3(12) = 36°.