

Exercise VSAQs

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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.

$$\text{So, } \angle POQ = 90^\circ$$

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:**

$$\angle AOB = 75^\circ \text{ (given)}$$

In a quadrilateral ABCD, bisectors of angles A and B intersect at O, then

$$\angle AOB = 1/2 (\angle ADC + \angle ABC)$$

$$\text{or } \angle AOB = 1/2 (\angle D + \angle C)$$

By substituting given values, we get

$$75^\circ = 1/2 (\angle D + \angle C)$$

$$\text{or } \angle C + \angle D = 150^\circ$$

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

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

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.

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

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 bisect each other.

$$AO = BO$$

$$\angle DBA = \angle BAC = 32^\circ \text{ (Angles facing same side)}$$

Each angle of a rectangle = 90 degrees

$$\text{So, } \angle DBC + \angle DBA = 90^\circ$$

$$\text{or } \angle DBC + 32^\circ = 90^\circ$$

$$\text{or } \angle DBC = 58^\circ$$

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)

$$\text{or } \angle ACD = 1/2(\angle BCD) \dots\dots(1)$$

We know, consecutive angles of a rhombus are supplementary.

$$\angle BCD + \angle ABC = 180^\circ$$

$$\angle BCD = 180^\circ - 56^\circ = 124^\circ$$

$$\text{Equation (1) } \Rightarrow \angle ACD = 1/2 \times 124^\circ = 62^\circ$$

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.

$$\text{Perimeter} = 2x + 2 \times 6.5$$

$$22 = 2x + 13$$

$$2x = 22 - 13 = 9$$

$$\text{or } x = 4.5$$

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°

$$3x + 5x + 9x + 13x = 360^\circ$$

$$30x = 360^\circ$$

$$x = 12^\circ$$

Measure of smallest angle = $3x = 3(12) = 36^\circ$.

