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, $\angle A + \angle B = 180^0$

Question 2: In a parallelogram ABCD, if $\angle D = 115^0$, then write the measure of $\angle A$.
Solution:

In a parallelogram ABCD,
$\angle D = 115^0$ (Given)

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

We know, Adjacent angles of a parallelogram are supplementary.

$\angle A + \angle D = 180^0$

$\angle A = 180^0 - 115^0 = 65^0$

Measure of $\angle A$ is 65^0.

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 bisects each other at 90 degrees.

So, $\angle POQ = 90^0$

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

Solution:

$\angle AOB = 75°$ (given)

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

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

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

By substituting given values, we get

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

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

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, $\angle SRP = 1/2 (90^\circ) = 45^\circ$

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

∠DBA = ∠BAC = 32° (Angles facing same side)

Each angle of a rectangle = 90 degrees

So, ∠DBC + ∠DBA = 90°

or ∠DBC + 32° = 90°

or ∠DBC = 58°

Question 8: If ABCD is a rhombus with ∠ABC = 56°, find the measure of ∠ACD.

Solution:
In a rhombus ABCD,
<ABC = 56°
So, <BCD = 2 (<ACD) (Diagonals of a rhombus bisect the interior angles)
or <ACD = 1/2 (<BCD) .....(1)

We know, consecutive angles of a rhombus are supplementary.

∠BCD + ∠ABC = 180°

∠BCD = 180° – 56° = 124°

Equation (1) => <ACD = 1/2 x 124° = 62°

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 + 2×6.5
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^o

$3x + 5x + 9x + 13x = 360^o$

$30x = 360^o$

$x = 12^o$

Length of smallest angle = $3x = 3(12) = 36^o$.