



# VIDYA BHAWAN, BALIKA VIDYAPITH

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(Affiliated to CBSE up to +2 Level)

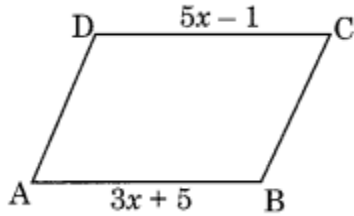
CLASS:8<sup>TH</sup>

DATE: 04-03-2021

SUB.:MATHEMATICS

Understanding Quadrilaterals Class 8 Extra Questions Very Short Answer Type

Question 1. In the given figure, ABCD is a parallelogram. Find x.



Solution:  $AB = DC$  [Opposite sides of a parallelogram]

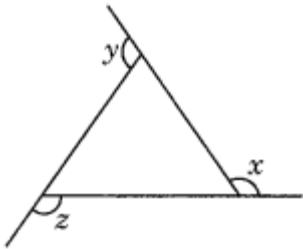
$$3x + 5 = 5x - 1$$

$$\Rightarrow 3x - 5x = -1 - 5$$

$$\Rightarrow -2x = -6$$

$$\Rightarrow x = 3$$

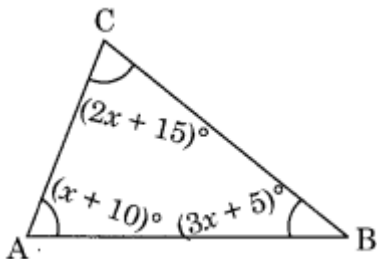
Question 2. In the given figure find  $x + y + z$ .



Solution: We know that the sum of all the exterior angles of a polygon =  $360^\circ$

$$x + y + z = 360^\circ$$

Question 3. In the given figure, find x.



Solution:  $\angle A + \angle B + \angle C = 180^\circ$  [Angle sum property]

$$(x + 10)^\circ + (3x + 5)^\circ + (2x + 15)^\circ = 180^\circ$$

$$\Rightarrow x + 10 + 3x + 5 + 2x + 15 = 180$$

$$\Rightarrow 6x + 30 = 180$$

$$\Rightarrow 6x = 180 - 30$$

$$\Rightarrow 6x = 150$$

$$\Rightarrow x = 25$$

Question 4. The angles of a quadrilateral are in the ratio of 2 : 3 : 5 : 8. Find the measure of each angle.

Solution: Sum of all interior angles of a quadrilateral =  $360^\circ$

Let the angles of the quadrilateral be  $2x^\circ$ ,  $3x^\circ$ ,  $5x^\circ$  and  $8x^\circ$ .

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

$$\Rightarrow 18x = 360^\circ$$

$$\Rightarrow x = 20^\circ$$

Hence the angles are

$$2 \times 20 = 40^\circ,$$

$$3 \times 20 = 60^\circ,$$

$$5 \times 20 = 100^\circ$$

$$\text{and } 8 \times 20 = 160^\circ.$$

Question 5. Find the measure of an interior angle of a regular polygon of 9 sides.

Solution: Measure of an interior angle of a regular polygon

$$\text{of } n \text{ sides} = \frac{(n-2) \times 180^\circ}{n}$$

For  $n = 9$ , we have

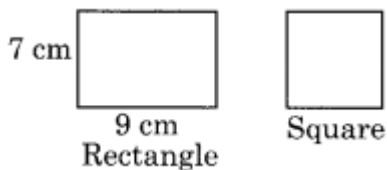
$$\begin{aligned} \frac{(9-2) \times 180^\circ}{9} &= \frac{7 \times 180^\circ}{9} \\ &= 7 \times 20^\circ = 140^\circ \end{aligned}$$

Hence, the angle is  $140^\circ$ .

Question 6. Length and breadth of a rectangular wire are 9 cm and 7 cm respectively. If the wire is bent into a square, find the length of its side.

Solution: Perimeter of the rectangle = 2 [length + breadth]

$$= 2[9 + 7] = 2 \times 16 = 32 \text{ cm.}$$

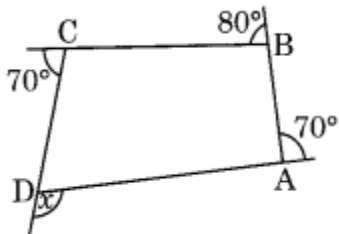


Now perimeter of the square = Perimeter of rectangle = 32 cm.

Side of the square =  $32 \div 4 = 8$  cm.

Hence, the length of the side of square = 8 cm.

Question 7. In the given figure ABCD, find the value of x.



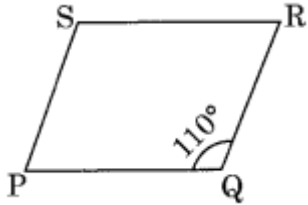
Solution: Sum of all the exterior angles of a polygon =  $360^\circ$

$$x + 70^\circ + 80^\circ + 70^\circ = 360^\circ$$

$$\Rightarrow x + 220^\circ = 360^\circ$$

$$\Rightarrow x = 360^\circ - 220^\circ = 140^\circ$$

Question 8. In the parallelogram given alongside if  $m\angle Q = 110^\circ$ , find all the other angles.



Solution: Given  $m\angle Q = 110^\circ$

Then  $m\angle S = 110^\circ$  (Opposite angles are equal)

Since  $\angle P$  and  $\angle Q$  are supplementary.

Then  $m\angle P + m\angle Q = 180^\circ$

$\Rightarrow m\angle P + 110^\circ = 180^\circ$

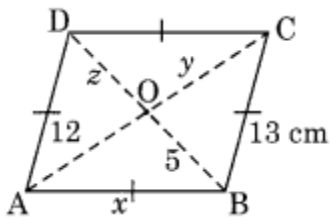
$\Rightarrow m\angle P = 180^\circ - 110^\circ = 70^\circ$

$\Rightarrow m\angle P = m\angle R = 70^\circ$  (Opposite angles)

Hence  $m\angle P = 70^\circ$ ,  $m\angle R = 70^\circ$

and  $m\angle S = 110^\circ$

Question 9. In the given figure, ABCD is a rhombus. Find the values of  $x$ ,  $y$  and  $z$ .



Solution:  $AB = BC$  (Sides of a rhombus)

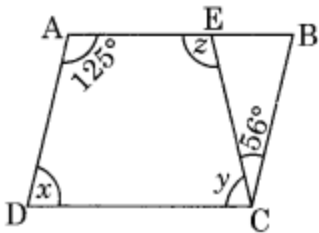
$x = 13$  cm.

Since the diagonals of a rhombus bisect each other

$z = 5$  and  $y = 12$

Hence,  $x = 13$  cm,  $y = 12$  cm and  $z = 5$  cm.

Question 10. In the given figure, ABCD is a parallelogram. Find  $x$ ,  $y$  and  $z$ .



Solution:  $\angle A + \angle D = 180^\circ$  (Adjacent angles)

$\Rightarrow 125^\circ + \angle D = 180^\circ$

$\Rightarrow \angle D = 180^\circ - 125^\circ$

$x = 55^\circ$

$\angle A = \angle C$  [Opposite angles of a parallelogram]

$\Rightarrow 125^\circ = y + 56^\circ$

$\Rightarrow y = 125^\circ - 56^\circ$

$\Rightarrow y = 69^\circ$

$\angle z + \angle y = 180^\circ$  (Adjacent angles)

$\Rightarrow \angle z + 69^\circ = 180^\circ$

$\Rightarrow \angle z = 180^\circ - 69^\circ = 111^\circ$

Hence the angles  $x = 55^\circ$ ,  $y = 69^\circ$  and  $z = 111^\circ$