

TEXT BOOK EXERCISE 3.2

Q. 1. Identify the quadrilateral in which

- (i) all angles are equal.
 (ii) opposite sides are equal.

Ans. Rectangle.

Q. 2. Identify the quadrilateral in which

- (i) all the sides are equal
 (ii) each of the angle is 90° .

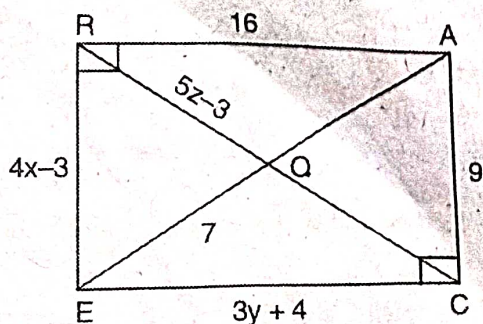
Ans. Square.

Q. 3. Identify the quadrilateral in which

- (i) diagonals bisect each other at 90° .
 (ii) diagonals are equal in length.

Ans. Square

Q. 4. In the given figure, RACE is a rectangle find x, y and z.



Solution. RACE is a rectangle.

We know that the opposite sides of a rectangle are equal.

$$ER = CA \text{ and } EC = RA$$

$$\therefore 4x - 3 = 9 \quad \Rightarrow 3y + 4 = 16$$

$$\Rightarrow 4x = 9 + 3 \quad \Rightarrow 3y = 16 - 4$$

$$\Rightarrow 4x = 12 \quad \Rightarrow 3y = 12$$

$$\Rightarrow x = \frac{12}{4} \quad \Rightarrow y = \frac{12}{3}$$

$$\Rightarrow x = 3 \quad \Rightarrow y = 4$$

We know that diagonals of a rectangle are equal and bisect each other.

$$\therefore RC = EA$$

$$\Rightarrow \frac{1}{2} RC = \frac{1}{2} EA$$

$$\Rightarrow OR = OE$$

$$\Rightarrow 5z - 3 = 7$$

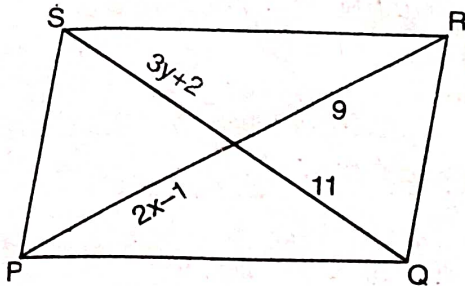
$$\therefore 5z = 7 + 3$$

$$\Rightarrow 5z = 10$$

$$\Rightarrow z = \frac{10}{5} = 2$$

Hence, $x = 3, y = 4, z = 2$ Ans.

Q. 5. In the given figure, PQRS is a rhombus find x and y .



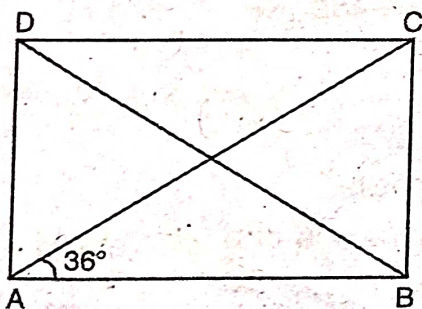
Solution. PQRS is a rhombus.

We know that diagonals of a rhombus bisect each other.

$$\begin{aligned} \therefore 2x - 1 &= 9 & \text{and } 3y + 2 &= 11 \\ \Rightarrow 2x &= 9 + 1 & \Rightarrow 3y &= 11 - 2 \\ \Rightarrow 2x &= 10 & \Rightarrow 3y &= 9 \\ \Rightarrow x &= \frac{10}{2} & \Rightarrow y &= \frac{9}{3} \\ \Rightarrow x &= 5 & \Rightarrow y &= 3 \end{aligned}$$

Hence, $x = 5, y = 3$ Ans.

Q. 6. In the given figure, ABCD is a rectangle $\angle BAC = 36^\circ$, find $\angle ACB$.



Solution. ABCD is a rectangle.

In triangle ABC

$$\angle BAC = 36^\circ$$

Each angle of a rectangle is 90°

$$\therefore \angle ABC = 90^\circ$$

We know that sum of the angles of a triangle is 180° .

\therefore In $\triangle ABC$

$$\angle ABC + \angle BAC + \angle ACB = 180^\circ$$

$$\Rightarrow 90^\circ + 36^\circ + \angle ACB = 180^\circ$$

$$\Rightarrow 126^\circ + \angle ACB = 180^\circ$$

$$\Rightarrow \angle ACB = 180^\circ - 126^\circ$$

$$\Rightarrow \angle ACB = 54^\circ \text{ Ans.}$$

Q. 7. Multiple Choice Questions :

- (i) Sum of adjacent angles in a parallelogram is :
 - (a) 90°
 - (b) 180°
 - (c) 360°
 - (d) None of them.
- (ii) If adjacent angles of a parallelogram are equal then which polygon it will become :
 - (a) Rectangle
 - (b) Rhombus
 - (c) Square
 - (d) Trapezium.
- (iii) If adjacent angles of a rhombus are equal then which polygon it will become :
 - (a) Rectangle
 - (b) Square
 - (c) Trapezium
 - (d) Parallelogram.
- (iv) If $3y^\circ$ and 120° are the adjacent angles of rhombus then find the value of y .
 - (a) 15°
 - (b) 90°
 - (c) 20°
 - (d) 60° .

Ans. (i) (b) 180° (ii) (a) Rectangle
(iii) (b) Square (iv) (c) 20° .

Objective Type Questions

Multiple Choice Questions :

(i) How many maximum number of 90° angles are possible in a quadrilateral ?

- (a) 1
- (b) 0
- (c) 2
- (d) 4.

Ans. (d) 4.

(ii) The sum of the measures of exterior angles of a quadrilateral is :

- (a) 180°
- (b) 360°
- (c) 90°
- (d) 480° .

Ans. (b) 360° .

(iii) How many sides does a regular polygon have, if the measure of an exterior angle is 24° ?

- (a) 15
- (b) 14
- (c) 20
- (d) 16.

Ans. (a) 15.

(iv) The adjacent angles in a parallelogram are

- (a) Supplementary
- (b) Complementary
- (c) Equal
- (d) Right angles.

Ans. (a) Supplementary.

(v) A parallelogram each of whose angle measure 90° is called

- (a) Rectangle
- (b) Rhombus
- (c) Kite
- (d) Trapezium.

Ans. (a) Rectangle.

(vi) Name the polynomial if sum of its interior angles is 540° .

- (a) Triangle
- (b) Quadrilateral
- (c) Pentagon
- (d) Hexagon.

Ans. (c) Pentagon.

(vii) Give the number of sides of a regular polygon if measure of its outside angle is 45° .

- (a) 3
- (b) 4
- (c) 8
- (d) 9.

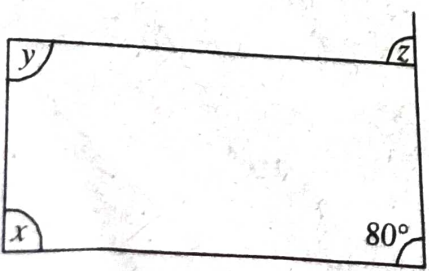
Ans. (c) 8.

(viii) Which of the following statement is true ?

- (a) All rectangles are squares
- (b) All kites are parallelogram
- (c) All squares are rhombuses and rectangles
- (d) All rectangles are not quadrilateral.

Ans. (b) All kites are parallelogram.

(ix) In the given parallelogram find the value of x .



- (a) 100°
- (b) 80°
- (c) 180°
- (d) 110° .

Ans. (a) 100° .

(x) What is the sum of the interior angles of a pentagon ?

- (a) 180°
- (b) 540°
- (c) 360°
- (d) 1000° .

Ans. (b) 540° .

2. Choose True/False for the following questions :

(i) Diagonals of a rectangle are equal.

(True/False)

Ans. True.

(ii) All rectangles are squares.

(True/False)

Ans. False.

(iii) All rhombuses are parallelograms.

(True/False)

Ans. True.

(iv) All squares are rhombuses and rectangles.

(True/False)

Ans. False.

(v) All kites are parallelogram.

(True/False)

Ans. True.

3. Fill in the blanks :

(i) The sides of a parallelogram are equal.

Ans. opposite.

(ii) Each angle of a rectangle is

Ans. 90° .

(iii) The number of sides of a regular polygon whose each exterior angle has a measure of 45° is

Ans. 8.

(iv) The sum of the four angles of a quadrilateral is

Ans. 360° .

(v) The sum of the exterior angles of a polygon is

Ans. 360° .