Ch-7 Worksheet

Section A

I. MULTIPLE CHOICE QUESTIONS (MCQ)

For each question, there are four Options, out of which one is correct. Choose the correct one :

1. The diagonals of a parallelogram
   (a) are equal. (b) bisect each other.
   (c) bisect each other at 90°. (d) bisect opposite angles.

2. The diagonals of rhombus
   (a) are equal. (b) bisect each other.
   (c) bisect each other at 90°. (d) None of these

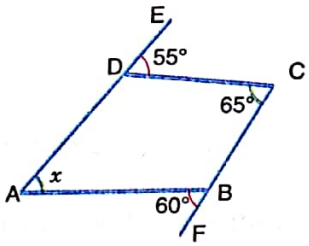
3. ABCD is a quadrilateral. If AC and BD bisect each other, then ABCD must be
   (a) square (b) rectangle (c) rhombus (d) parallelogram

4. Which of the following cannot be the angles of a quadrilateral ?
   (a) 90°, 70°, 110°, 90° (b) 85°, 89°, 71°, 115°
   (c) 89°, 75°, 80°, 85° (d) 101°, 91°, 79°, 89°

5. The lengths of the diagonals of a rhombus are 8 cm and 6 cm. Its each side is
   (a) 10 cm (b) 4 cm (c) 4.5 cm (d) 5 cm

6. In a parallelogram if one angle is 60°, the other angles are
   (a) 60°, 60°, 60° (b) 60°, 90°, 90° (c) 60°, 120°, 120° (d) 45°, 135°, 120°

7. If in the adjoining figure, ADE and CBF are straight lines, then x =
   (a) 55° (b) 60°
   (c) 65° (d) 50°



8. The quadrilateral formed by joining the mid-points of the sides of a quadrilateral is a
   (a) square (b) rectangle (c) parallelogram (d) kite

9. If a quadrilateral ABCD is such that AB = AD and BC = CD, then it is a
   (a) kite (b) parallelogram (c) square (d) rhombus

10. One of the diagonals of a rhombus is equal to a side of the rhombus. The angles of the rhombus are
    (a) 60°, 80°, 110°, 110 (b) 100°, 80°, 100°, 80° (c) 60°, 120°, 60°, 120° (d) 90°, 90°, 90°, 90°

II. TRUE / FALSE

1. The diagonals of a rectangle bisect each other at right angles.
2. If two pairs of adjacent sides of a quadrilateral are equal, then it is a rhombus.
3. Every quadrilateral is either a trapezium or a parallelogram or a Kite.
4. All rectangles are parallelogram.
5. Opposite sides of a trapezium are parallel.
6. Opposite angles of a parallelogram are equal.

(1)

7. If three angles of a quadrilateral are 90°, 50° and 90°, then the fourth angle is 80°.

8. The length of each diagonal of a quadrilateral is 9 cm and they bisect each other. Then, the quadrilateral is a parallelogram.

9. Each diagonal of a square bisects the square into two congruent triangles.

10. All the angles and sides of a rhombus are equal.

III. FILL IN THE BLANKS

1. The diagonals of a square _____ each other at right angles.

2. The diagonals of a parallelogram ABCD intersect at O. If $\angle BOC = 80°$ and $\angle BDC = 60°$, then $\angle OAB$ is _____.

3. If two adjacent angles of a parallelogram are in the ratio 4 : 5, then the measures of the angles are _____.

4. Two line segments, each 9 cm long, bisect each other at right angles. Their end-points are joined together. The shape formed is _____.

5. The diagonals of a parallelogram are _____.

6. If the adjacent sides of a parallelogram are 9 cm and 6 cm, its perimeter is _____.

7. In a parallelogram, opposite angles are _____.

8. In a rhombus, all sides are _____.

9. A rectangle is a square, if its diagonals bisect each other at _____.

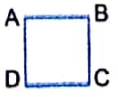
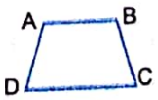
10. A rhombus has _____ pairs of parallel sides.

IV. MATCH THE COLUMNS

1.

Column A	Column B
(*a*) Unequal diagonals bisect each other.	(*p*) Rhombus
(*b*) Equal diagonals bisect each other.	(*q*) Square
(*c*) Unequal diagonals bisect each other at right angles.	(*r*) Parallelogram
(*d*) Equal diagonals bisect each other at right angles.	(*s*) Rectangle

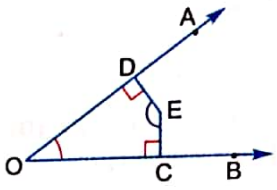
2.

Column A	Column B	
(*a*) $\angle A = \angle C = \angle B = \angle D = 90°$, $AB = CD$, $BC = AD$	(*p*) Parallelogram	
(*b*) $AB \parallel CD$	(*q*) Square	
(*c*) $\angle A = \angle C$, $AB = CD$, $AD = BC$, $\angle B = \angle D$, $AB \parallel CD$, $AD \parallel BC$	(*r*) Rectangle	
(*d*) $AB = BC = CD = DA$, $\angle A = \angle B = \angle C = \angle D = 90°$	(*s*) Trapezium	

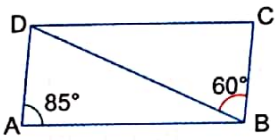
Section B

I. SHORT AND LONG ANSWER TYPE QUESTIONS

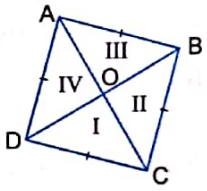
1. Three angles of a quadrilateral are 100°, 50° and 50° respectively. Find the measure of the fourth angle.
2. The four angles of a quadrilateral are in the ratio 3 : 5 : 7 : 9. Find the angles of the quadrilateral.
3. In the adjoining figure, E is a point in the interior of $\angle AOB$, such that EC $\perp$ OB and ED $\perp$ OA. If $\angle AOB = 36°$, what is the measure of $\angle CED$?



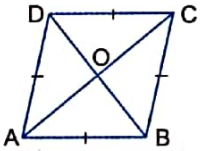
4. Two adjacent angles of parallelogram are in the ratio 7 : 2. Find the measure of all the angles of parallelogram.
5. The long side of a parallelogram is 8 cm. If the shorter side is $\frac{3}{4}$ of the longer side, find the perimeter of the parallelogram.
6. In the adjoining figure, ABCD is a parallelogram. If $\angle DAB = 85°$ and $\angle DBC = 60°$, then calculate :
   (*i*) $\angle CDB$ (*ii*) $\angle ABD$



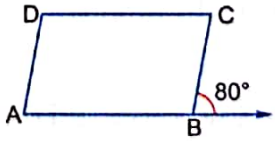
7. If one of the angles formed by diagonals and adjacent sides of rhombus is 20°, find all four angles of rhombus.
8. Show that the four triangles as shown in the adjoining figure, formed by diagonals and sides of a rhombus are congruent.



9. Prove that diagonals of a rhombus bisect each other at right angles as given in the adjoining figure.



10. If one of the diagonals of a rhombus is equal to one of its sides, find the angles of rhombus.
11. Two angles of a quadrilateral are 55° and 175° and the other two angles are equal. What is the measures of each equal angles ?
12. The angles of a quadrilateral are $2x + 3°$, $x + 7°$, $3x - 5°$ and $2x + 11°$. Find the measure of each angle of the quadrilateral.
13. From the adjoining figure, calculate the remaining angles of the parallelogram ABCD.



14. The point of intersection of the diagonals of a quadrilateral divides one diagonal in the ratio 3 : 4. Can it be a parallelogram ? Why or why not ?
15. Two adjacent angles of a parallelogram are in the ratio 4 : 5. Find all the angles of the parallelogram.
16. Prove that each diagonal of a rhombus bisects the angle through which it passes.
17. Prove that in a parallelogram :
   (*i*) opposite sides are equal. (*ii*) opposite angles are equal.
   (*ii*) each diagonal bisects the parallelogram.
18. Prove that diagonals of a rhombus bisect each other at right angles.
19. Prove that diagonals of a square are equal and bisect each other perpendicularly.
20. Prove that if a pair of opposite sides of a quadrilateral are equal and parallel, it is a parallelogram.