Some special Parallelograms

A. Choose the Correct Answer:

1. **Which of the following quadrilaterals has all sides equal and all angles equal?**
   a) Rhombus
   b) Square
   c) Rectangle
   d) Trapezium
2. **Which special parallelogram has diagonals that are equal in length but do not intersect at 90°?**
   a) Rhombus
   b) Square
   c) Rectangle
   d) Kite
3. **Which of the following properties is not true for a rhombus?**
   a) All sides are equal
   b) All angles are 90°
   c) Diagonals bisect each other at right angles
   d) Opposite angles are equal

B. Write the Missing Terms to Complete the Sentences:

a) A _____ has all sides equal and all angles 90°.

b) The diagonals of a rhombus bisect each other at _____ angles.

c) A rectangle has opposite sides _____ and all angles _____.

d) A square is a special type of _____ and _____.

e) The diagonals of a rectangle are _____ in length and bisect each other.

C. Figure out the answers to these questions:

1. Draw a square, a rectangle, and a rhombus. Label sides, angles, and diagonals, and write one special property for each.
2. Compare the properties of a rectangle and a rhombus. Write any three similarities and two differences.
3. In a square PQRS, one diagonal measures 10 cm. Find the length of the other diagonal and explain why.
4. Explain why every square is a rectangle, but every rectangle is not a square.

5. A parallelogram has all sides equal and the diagonals intersect at 90°. What kind of special parallelogram is this? Justify.

D. Mark each sentence with a True (✔) or False (✘):

1. All squares are rectangles, but all rectangles are not squares. ☐
2. A rhombus has all angles equal to 90°. ☐
3. The diagonals of a rectangle bisect each other but are not perpendicular. ☐
4. A square is both a rhombus and a rectangle. ☐
5. Diagonals of a rhombus are always equal. ☐

E. Challenge yourself with these questions:

1. Create a table showing the properties of parallelogram, rectangle, rhombus, and square with respect to sides, angles, and diagonals.
2. Look around your surroundings and find real-life objects that resemble squares, rectangles, and rhombuses. List them.
3. Draw a rhombus on graph paper and verify its diagonal properties using a ruler.
4. Design a quadrilateral with all sides equal and opposite angles equal but not 90°. What figure is it?
5. A square has diagonals measuring 12 cm. Find the length of one side using the Pythagoras theorem.