Verification of Properties of a Square

A. Choose the Correct Answer:

1. Which of the following is not a property of a square?

a) All angles are right angles

b) All sides are equal

c) Diagonals are unequal

d) Diagonals bisect each other at right angles

2. What instrument can be used to verify the equality of angles in a square?

a) Compass

b) Divider

c) Protractor

d) Scale

3. The diagonals of a square:

a) Are unequal and perpendicular

b) Are equal but do not bisect each other

c) Are equal and bisect each other at right angles

d) Do not intersect

B. Write the Missing Terms to Complete the Sentences:

1. A square has all sides _____ in length.
2. Each angle in a square is _____ degrees.
3. Diagonals of a square are equal and intersect at _____ angles.
4. The number of lines of symmetry in a square is _____.
5. A square is a special type of _____ and _____.

C. Figure out the answers to these questions:

1. Draw a square and verify its diagonals are equal using a ruler.
2. Use a protractor to measure the angles of a square and confirm that each angle is 90°.
3. Fold a square paper along both diagonals. What do you observe? How does this confirm a square's properties?
4. Explain how a square satisfies all properties of both a rectangle and a rhombus.
5. A student claims a square has unequal diagonals but equal sides. Design an activity to help them verify the actual properties.

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

1. All four angles of a square are obtuse. ☐
2. A square has two pairs of parallel sides. ☐
3. The diagonals of a square bisect each other at 90°. ☐
4. A square is a parallelogram with all sides equal. ☐
5. Diagonals of a square are not equal. ☐

E. Challenge yourself with these questions:

1. List three real-life objects that are shaped like a square and describe how you can verify their properties.
2. Create a table comparing a square, rectangle, and rhombus based on sides, angles, and diagonals.
3. Find the length of a diagonal of a square with side 6 cm using the Pythagoras Theorem.
4. Using graph paper, draw a square and mark all diagonals. Measure and verify their properties.
5. Design a step-by-step method to verify whether a given quadrilateral is a square using only ruler and protractor.