Properties of Two-Dimensional Figures Worksheet

Grade 5 · Common Core 5.G.B.3

> Understand that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category. For example, all rectangles have four right angles and squares are rectangles, so all squares have four right angles.

Practice

Builds the skill step by step.

1. Are all squares rectangles?
   A. Yes: every square has 4 right angles.
   B. No: squares have equal sides.
   C. Only some are.
   D. No: rectangles are longer.

2. What does every rectangle have?
   A. 3 sides
   B. no parallel sides
   C. 4 right angles
   D. 4 equal sides

3. Is every rhombus a parallelogram?
   A. Yes: a rhombus has 2 pairs of parallel sides.
   B. No: a rhombus has equal sides.
   C. Only if it has right angles.
   D. No: parallelograms have no equal sides.

4. All parallelograms have opposite sides parallel. A rectangle is a parallelogram. What must be true about rectangles?

   A. Rectangles have 4 equal sides.

   B. Rectangles have opposite sides parallel.

   C. Nothing.

   D. Rectangles have no right angles.

5. How many right angles does every square have?

6. All rhombuses have 4 equal sides. Squares are rhombuses. What must be true about squares?

   A. Squares have no right angles.

   B. Squares have 3 sides.

   C. Squares are not parallelograms.

   D. Squares have 4 equal sides.

7. Which statement is NOT always true?

   A. All rectangles are parallelograms.

   B. All squares are rhombuses.

   C. All rectangles are squares.

   D. All squares are rectangles.

8. An equilateral triangle has 3 equal sides. Is it also isosceles (at least 2 equal sides)?

   A. Yes

   B. No

   C. Only if it is right

   D. Only if it is large

9. How many pairs of parallel sides does every parallelogram have?

10. How many sides does every quadrilateral have?

ALBERT

Name _____ Date _____

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On Level

Grade-level practice.

1. Explain why every square has opposite sides that are parallel.

2. Kim says a rhombus with 4 right angles isn't a square. What is the best reply?

   A. It is a trapezoid.

   B. It is a square: it has 4 equal sides and 4 right angles.

   C. Kim is right.

   D. It is only a rectangle.

3. Which attribute do all rectangles and all rhombuses share?

   A. exactly one pair of parallel sides

   B. opposite sides parallel

   C. 4 right angles

   D. 4 equal sides

4. Which statement is true?

   A. All rectangles are rhombuses.

   B. All rhombuses are squares.

   C. All parallelograms are rectangles.

   D. All squares are rhombuses.

5. A rectangle has one side 8 cm and another side 3 cm. Opposite sides of a rectangle are equal. What is its perimeter?

6. A rhombus has one side 6 inches long. What is its perimeter?

7. Can a right triangle also be isosceles?

   A. Yes: its two legs can be equal.

   B. No: right triangles never have equal sides.

   C. Only if it has 3 right angles.

   D. Only if it is equilateral.

8. A parallelogram has one angle of 70°. Opposite angles of a parallelogram are equal. What is the angle opposite it?

9. Can a triangle be both equilateral and right?

   A. No: an equilateral triangle's angles are all 60°.

   B. Yes

   C. Only if it is large

   D. Only if it is isosceles

10. What is the sum of the angles of every square?

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Challenge

Multi-step and word problems that stretch it.

1. A property is true for all quadrilaterals. Which shapes must have it?

   A. none of them

   B. only squares

   C. only rectangles

   D. squares, rectangles, rhombuses and parallelograms

2. Which is a counterexample to "All rectangles have 4 equal sides"?

   A. a triangle

   B. a 2-by-5 rectangle

   C. a rhombus

   D. a 4-by-4 square

3. Explain why every rhombus is a parallelogram, but not every parallelogram is a rhombus.

4. A square has a perimeter of 20 units. How long is each side?

5. In a diagram of quadrilaterals, where do squares belong?

   A. inside both the rectangle group and the rhombus group

   B. only in the rectangle group

   C. only in the rhombus group

   D. outside the parallelogram group

6. A parallelogram has one angle of 110°. Angles next to each other in a parallelogram add to 180°. What is the measure of an angle next to it?

7. An equilateral triangle has a perimeter of 27 cm. How long is each side?

8. Is this reasoning correct? "All squares are rectangles, so all rectangles are squares."

   A. Yes

   B. Only for rhombuses

   C. No: a category's members don't all belong to its subcategory.

   D. Only for large rectangles

9. An isosceles triangle has two sides of 7 cm and a perimeter of 20 cm. How long is the third side?

10. Which shape has all the attributes of a rectangle and all the attributes of a rhombus?

    A. square

    B. parallelogram

    C. trapezoid

    D. kite