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All square are rectangle true or false

Hi Odette, Look at the answer I gave to Clarence. Definition: A rectangle is a quadrilateral with all four angles right angles. From this definition you can prove that the opposite sides are parallel and of the same lengths. A rectangle can be tall and thin, short and fat or all the sides can have the same length. Definition: A square is a quadrilateral with all four angles right angles and all four sides of the same length. So a square is a special kind of rectangle, it is one where all the sides have the same length. Thus every square is a rectangle because it is a quadrilateral with all four angles right angles. However not every rectangle is a square, to be a square its sides must have the same length. Penny Thank you for your participation! Decide whether each of these statements is always, sometimes, or never true. If it is sometimes true, draw and describe a figure for which the statement is true and another figure for which the statement is not true. A rhombus is a square A triangle is a parallelogram A square is a rhombus A parallelogram is a rectangle A trapezoid is a quadrilateral The purpose of this task is to have students reason about different kinds of shapes based on their defining attributes and to understand the relationship between different categories of shapes that share some defining attributes. In cases when the list of defining attributes for the first shape is a subset of the defining attributes of the second shape, then the statements will always be true. In cases when the list of defining attributes for the second shape is a subset of the defining attributes of the first shape, then the statements will sometimes be true. When this task is used in instruction, teachers should be prioritizing the Standard for Mathematical Practice 6: Attend to Precision. Students should base their reasoning by referring to side length, side relationships, and angle measures. 1. A rhombus is a square. This is sometimes true. It is true when a rhombus has 4 right angles. It is not true when a rhombus does not have any right angles. Here is an example when a rhombus is a square: Here is an example when a rhombus is not a square: 2. A triangle is a parallelogram. This is never true. A triangle is a three-sided figure. A parallelogram is a four-sided figure with two sets of parallel sides. 3. A square is a parallelogram. This is always true. Squares are quadrilaterals with 4 congruent sides and 4 right angles, and they also have two sets of parallel sides. Parallelograms are quadrilaterals with two sets of parallel sides. Since squares must be quadrilaterals with two sets of parallel sides, then all squares are parallelograms. 4. A square is a rhombus This is always true. Squares are quadrilaterals with 4 congruent sides. Since rhombuses are quadrilaterals with 4 congruent sides, squares are by definition also rhombuses.   5. A parallelogram is a rectangle. This is sometimes true. It is true when the parallelogram has 4 right angles. It is not true when a parallelogram has no right angles. Here is an example when a parallelogram is a rectangle: Here is an example when a parallelogram is not a rectangle: 6. A trapezoid is a quadrilateral. This is always true. Trapezoids must have 4 sides, so they must always be quadrilaterals. Page 2 People often ask if a square is also a rectangle. The quick answer is "YES". However, this answer makes sense if you just think about the properties of these two shapes. The Rectangle A rectangle is a parallelogram whose sides intersect at 90° angles. Now, since a rectangle is a parallelogram, its opposite sides must be congruent. The Square A square is also a parallelogram whose sides intersect at 90° angles. Therefore, like a rectangle its opposite sides are congruent. However, a square has an added feature. It is also a rhombus. Therefore, all of its sides are congruent. A rectangle is a square when both pairs of opposite sides are the same length. This means that a square is a specialized case of the rectangle and is indeed a rectangle. What extra properties does the square have? Well, the only difference is that a square is also a rhombus so the square has all the properties of a rhombs while a rectangle does not. Something went wrong. Wait a moment and try again. Last updated at Aug. 4, 2018 by Teachoo Transcript Ex 3.4, 1 State whether True or False. (a) All rectangles are squares A rectangle is a parallelogram where one angle is 90° A square is a parallelogram where all angles are 90° and all sides are equal Since, rectangle has only Opposite sides equal whereas a square has all the sides equal. ∴ All rectangles are not squares. = Statement is False Ex 3.4, 1 State whether True or False. (b) All rhombuses are parallelograms A rhombus is a parallelogram where all sides are equal Since both rhombus and Parallelograms have their Opposite sides equal and Parallel, ∴ All rhombuses are Parallelograms = Statement is True Ex 3.4, 1 State whether True or False. (c) All squares are rhombuses and also rectangles A rhombus is a parallelogram where all sides are equal A rectangle is a parallelogram where one angle is 90° A square is a parallelogram where all angles are 90° and all sides are equal Both Squares and rhombuses have their all the sides equal, ∴ All squares are rhombuses Also, each angle of a square and a rectangle is a right angle ∴ All squares are rectangles. = Statement is True. Ex 3.4, 1 State whether True or False. (d) All squares are not parallelograms. A square is a parallelogram where all angles are 90° and all sides are equal Since both Squares and Parallelograms have their Opposite sides Parallel, ∴ All squares are Parallelogram ∴ Statement is False Ex 3.4, 1 State whether True or False. (e) All kites are rhombuses. Kite is a quadrilateral where consecutive sides are equal A rhombus is a parallelogram where all sides are equal Kites have their consecutive sides equal whereas rhombuses have their all the sides equal. ∴ All kites are not rhombuses . = Statement is False Ex 3.4, 1 State whether True or False. (f) All rhombuses are kites. Kite is a quadrilateral where consecutive sides are equal A rhombus is a parallelogram where all sides are equal In Kite, consecutive sides are equal and in rhombus, all sides are equal. ∴ In Rhombus, consecutive sides are equal. ∴ All rhombuses are kites. = Statement is True. Ex 3.4, 1 State whether True or False. (g) All parallelograms are trapeziums. In Trapezium, one pair of opposite sides is Parallel In Parallelograms, both pairs of Opposite Sides are Parallel. ∴ In Parallelogram, a pair of Opposite sides is Parallel ∴ All Parallelograms are Trapeziums = Statement is True. Ex 3.4, 1 State whether True or False. (h) All squares are trapeziums. In Trapezium, a Pair of Opposite sides is Parallel A square is a parallelogram with all sides equal and all angles equal So, In square, a Pair of Opposite sides Parallel. ∴ All squares are trapeziums Statement is True Page 2 Last updated at Aug. 4, 2018 by Teachoo Transcript Ex 3.4, 2 Identify all the quadrilaterals that have. (a) four sides of equal length Square AB = BC = CD = DA Rhombus PQ = QR = RS = SP Quadrilaterals that have four sides of equal length are Square Rectangle Reference > Mathematics > Geometry > Quadrilaterals We've saved the simplest figures for last: rectangles and squares. Here are the definitions.Rectangle: A rectangle is a parallelogram in which each interior angle is 90 degrees.Square: A square Rectangle ∠P = ∠Q = ∠R = ∠S = 90° Quadrilaterals that have four right angles are Square Rectangle ∠A = ∠B = ∠C = ∠D = 90° Quadrilaterals that have four sides of equal length are Square Rhombus Ex 3.4, 2 Identify all the quadrilaterals that have. (b) four right angles Square ∠A = ∠B = ∠C = ∠D = 90° is a rhombus in which each interior angle is 90 degrees. There are other ways of defining these two figures; we could say that a rectangle is a parallelogram with adjacent angles congruent, or we could say that a square is a rhombus with adjacent angles congruent. But I think the definitions I've given are the simplest. Since a rectangle is a parallelogram, all the properties of quadrilaterals and parallelograms apply to rectangles. Since a square is a rhombus, and a rhombus is a parallelogram, and a parallelogram is a quadrilateral, all the properties of quadrilaterals, parallelograms and rhombuses apply to squares. Also, it should be noted that, just as some parallelograms are rhombuses, some rectangles are squares. Some folks think that rectangles can't be squares, but that's not true unless you change the definition of a rectangle to specify that the sides can't all be the same length. What are the special properties of rectangles and squares? Well, since the angles of both rectangles and squares are 90 degrees, we can always use the Pythagorean Theorem to find the lengths of the diagonals. Also, since the sides are perpendicular, you can treat any side as the base, and an adjacent side as the altitude, to get the area. Ar = bh As = s2 1. Which is true: "All parallelograms are rectangles," or "All rectangles are parallelograms."2. True or false: All squares are rectangles3. True or false: All rectangles are squares4. True or false: All squares are parallelograms5. The area of a square is 36 square units. What is the length of a side?6. If the sides of a rectangle are 5 and 12, what is the length of a diagonal?7. The area of a rectangle is 48 square units, and one side has length 12 units. What is the other side length?8. Are any trapezoids rectangles? Why or why not?9. The area of a rectangle is 36 square units, and its perimeter is 26. What are the lengths of the sides?10. The area of a square is one half its perimeter. What is the length of a side?Assign this reference pageClick here to assign this reference page to your students.The RhombusUnit Index Reviews and book lists - books we love! Like us on Facebook to get updates about new resources