

WA4MMGT11

Two-dimensional space and structures

Core + Challenge

Classifying 2D Shapes by Properties

I can classify and name 2D shapes by their number of sides, angles, and symmetry properties.

Name: _____ Date: _____ Score: / 53

Key idea

Classifying 2D shapes: shapes can be grouped by their number of sides (triangle = 3, quadrilateral = 4, pentagon = 5, hexagon = 6, octagon = 8 ...), by their angles (right, acute, obtuse), and by whether their sides and angles are equal.

Special quadrilaterals: **square** (4 equal sides, 4 right angles), **rectangle** (opposite sides equal, 4 right angles), **rhombus** (4 equal sides, opposite angles equal, no right angles needed), **parallelogram** (opposite sides parallel and equal), **trapezium** (one pair of parallel sides).

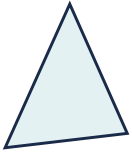
A

Fluency *practise the skill*

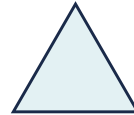
/16 marks

Name the shape described by each set of properties.

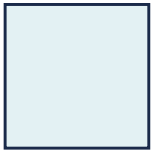
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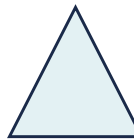
1. A shape with 3 straight sides.



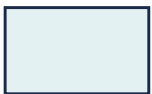
9. A triangle with all three sides equal.



2. A shape with 4 equal sides and 4 right angles. _____



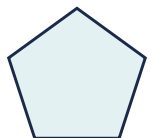
10. A triangle with exactly two sides equal. _____



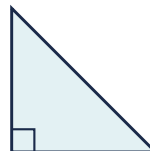
3. A shape with 4 sides, opposite sides equal, and 4 right angles (but not all sides equal). _____



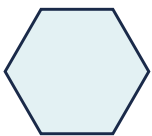
11. A triangle with no sides equal.



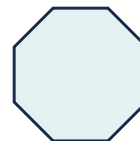
4. A shape with 5 straight sides.



12. A triangle with one right angle.



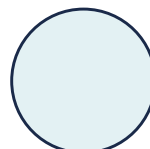
5. A shape with 6 straight sides.



13. A shape with 8 straight sides.



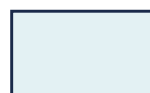
6. A quadrilateral with exactly one pair of parallel sides. _____



14. A round shape with no straight sides or corners. _____



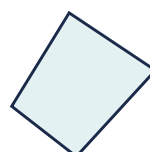
7. A shape with 4 equal sides but no right angles. _____



15. A quadrilateral where all four angles are right angles but the shape is not a square. _____



8. A quadrilateral with two pairs of parallel, equal sides and no right angles. _____



16. A 2D shape with 4 sides and 4 angles, but no sides are equal and no sides are parallel. _____

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1

List the properties of a square that make it different from a rectangle that is not a square.

[3 marks]

Answer: _____

2

Sort the following shapes into the two groups 'quadrilateral' and 'not a quadrilateral': triangle, square, pentagon, rectangle, circle, trapezium, hexagon, rhombus.

[4 marks]

Answer: _____

3

A shape has 4 sides, and all four sides are the same length, but when you measure the angles, none of them are right angles. What is the name of this shape, and what is one other way you could check it is not a square?

[3 marks]

Answer: _____

4

Explain the difference between a rhombus and a parallelogram, and give an example of a shape that could be classified as both.

[4 marks]

Answer: _____

5

How many sides, angles, and vertices (corners) does a hexagon have?

[3 marks]

Answer: _____

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6

A student is asked to draw a quadrilateral that is NOT a square, rectangle, rhombus, parallelogram or trapezium. Describe what such a shape would look like, and name one real example.

[4 marks]

Answer: _____

C

Reasoning *explain, justify and check*

/9 marks

1

Explain why every square is also a rectangle, but not every rectangle is a square.

[2 marks]

2

A student says a rhombus cannot be a parallelogram because a rhombus has equal sides and a parallelogram does not. Explain why this reasoning is incorrect.

[2 marks]

3

Explain the difference between classifying a triangle by its sides (equilateral, isosceles, scalene) and classifying it by its angles (right-angled, acute, obtuse).

[2 marks]

4

A student says that a shape with 4 equal sides must always be a square. Explain whether this is true, and describe a shape that proves your answer.

[3 marks]

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D

Challenge *multi-step and problem-solving***/7 marks****1**

A shape has 4 sides and 4 right angles. Its opposite sides are equal, but adjacent sides are not. What is the most specific name for this shape?

[2 marks]**Answer:** _____**2**

A polygon has one more side than a hexagon. What is this shape called, and how many sides does it have?

[2 marks]**Answer:** _____**3**

A student draws a quadrilateral with two pairs of parallel sides, all four sides equal in length, and all four angles equal to 90° . Name every shape classification that correctly describes this figure, from most general to most specific.

[3 marks]**Answer:** _____**How did I go?**Fluency ____/16 Core ____/21 Reasoning ____/9 Challenge ____/7 **Total ____/53**

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