2.94 Properties of Quadrilaterals and Symmetry: 10-minute Pack

GL ASSESSMENT GL-11PLUS-MATHS · Calculators not allowed · about 10 minutes

Total Marks

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 Which quadrilateral has exactly one pair of parallel sides?

- ☐ A) Parallelogram
- ☐ B) Kite
- ☐ C) Trapezium
- ☐ D) Square
- ☐ E) Rhombus

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2 A rectangle is not a square.

(a) How many lines of symmetry does it have? **(1)**

(b) What is its order of rotational symmetry? **(1)**

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3 Name the quadrilateral that has two pairs of adjacent equal sides (each pair next to each other) but whose opposite sides are not equal.

(1)

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4 Does every parallelogram have a line of symmetry? Give a reason for your answer.

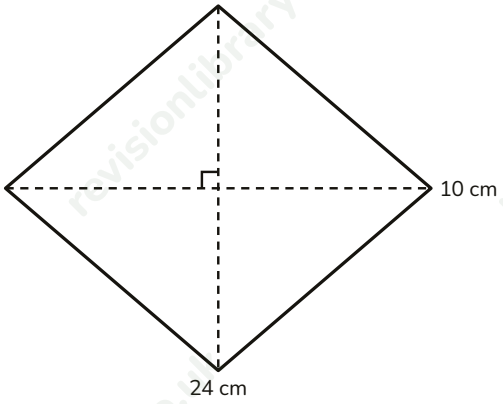
(2)

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5 A pupil writes: "The interior angles of a quadrilateral add up to 180 degrees." Is the pupil correct? Explain briefly.

(2)

6 A kite has diagonals of lengths 10 cm and 24 cm which meet at right angles. Calculate the area of the kite.



(2)

7 Explain what is meant by 'order of rotational symmetry 2' for a shape.

(1)

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Mark scheme · 2.94 Properties of Quadrilaterals and Symmetry: 10-minute Pack

Question 1

correct option C (Trapezium) cao **B1**

Answer: C) Trapezium

Question 2

(a) 2 lines of symmetry cao **B1**

(a) Answer: 2

(b) Order 2 cao **B1**

(b) Answer: 2

Question 3

Kite cao **B1**

Answer: Kite

Question 4

No (simple correct statement) cao **B1**

Reason: opposite sides are parallel but angles need not be equal; only special parallelograms (rectangles, rhombuses) have symmetry ao **A1**

Answer: No. A general parallelogram need not have equal adjacent angles or equal adjacent sides, so it does not necessarily have a line of symmetry; only special cases like rectangles or rhombuses do.

Question 5

State that the pupil is incorrect cao **B1**

Give correct reason: sum is 360 degrees since (4 - 2) x 180 = 360 or split into two triangles ao **A1**

Answer: No. A quadrilateral's interior angles sum to 360 degrees because (4 - 2) x 180 = 360, or by dividing the quadrilateral into two triangles each with sum 180.

Question 6

Use area formula for kite/orthogonal diagonals: (1/2) x d1 x d2 **M1**

Area = (1/2) x 10 x 24 = 120 cm² cao **A1**

Answer: 120 cm^2

Question 7

Correct explanation: the shape matches itself after rotation by 180 degrees (and 360 degrees) cao **B1**

Answer: It means the shape maps onto itself after a rotation of 180 degrees (and again at 360 degrees).

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