4.5 Properties of 2D Shapes: 1-hour Pack

Calculators not allowed · about 60 minutes

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 A quadrilateral has one pair of parallel sides. Its non-parallel sides are equal in length and it has no right angles.
Write down the mathematical name of the quadrilateral.

(1)

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2 A triangle has angles 68° and 94°. Work out the third angle and describe the triangle using the words equilateral, isosceles or scalene, and acute-angled, right-angled or obtuse-angled.

(3)

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3 What is the name of a polygon with 10 sides?

(1)

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4 Three angles of a quadrilateral are 66°, 72° and 72°. Work out the fourth angle and say whether the quadrilateral could be a parallelogram.

(3)

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5 A regular polygon has 6 lines of symmetry. How many sides has it, and what is the size of each exterior angle?

(2)

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6 How many sides does a hexagon have?

(1)

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7 A triangle has angles 70° and 56°. Work out the third angle and describe the triangle using the words equilateral, isosceles or scalene, and acute-angled, right-angled or obtuse-angled.

(3)

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8 Three angles of a quadrilateral are 95°, 74° and 100°. Work out the fourth angle and say whether the quadrilateral could be a parallelogram.

(3)

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9 A regular polygon has 10 lines of symmetry. How many sides has it, and what is the size of each exterior angle?

(2)

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10 Three angles of a quadrilateral are 112°, 106° and 76°. Work out the fourth angle.

(2)

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11 A triangle has angles 36° and 35°. Work out the third angle and describe the triangle using the words equilateral, isosceles or scalene, and acute-angled, right-angled or obtuse-angled.

(3)

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12 A quadrilateral has 2 pairs of parallel sides and 4 lines of symmetry.
Write down the mathematical name of the quadrilateral.

(1)

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13 What is the name of a polygon with 5 sides?

(1)

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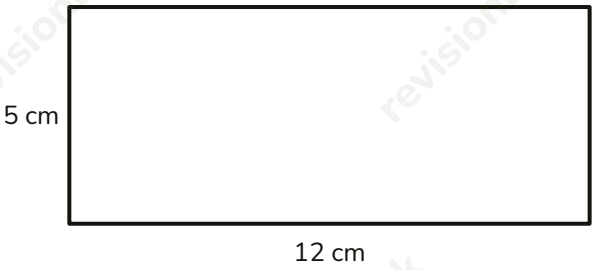
14 A polygon has 12 sides. How many diagonals can be drawn from one vertex?

(2)

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15 A rectangle has length 12 cm and width 5 cm. Work out the perimeter.

Diagram NOT accurately drawn



(2)

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16 A regular polygon has 5 lines of symmetry. How many sides has it, and what is the size of each exterior angle?

(2)

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17 Three angles of a quadrilateral are 81°, 78° and 40°. Work out the fourth angle and say whether the quadrilateral could be a parallelogram.

(3)

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18 A triangle has angles 90° and 33°. Work out the third angle and describe the triangle using the words equilateral, isosceles or scalene, and acute-angled, right-angled or obtuse-angled.

(3)

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19 Three angles of a quadrilateral are 65°, 118° and 44°. Work out the fourth angle.

(2)

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20 Write down (a) the number of lines of symmetry and (b) the order of rotational symmetry of a regular heptagon.

(2)

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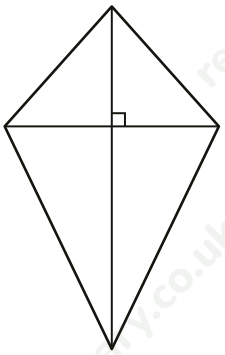
21 A triangle has sides of lengths 5 cm, 5 cm and 8 cm. State whether the triangle is isosceles, equilateral or scalene.

(1)

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22 A kite has diagonals that meet at right angles. The diagonals are 10 cm and 16 cm long. Calculate the area of the kite.

Diagram NOT accurately drawn



Horizontal diagonal = 10 cm

Vertical diagonal = 16 cm

(3)

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23 Name the quadrilateral with four equal sides and no right angles.

(1)

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Mark scheme · 4.5 Properties of 2D Shapes: 1-hour Pack

Question 1

isosceles trapezium cao — B1

Answer: **isosceles trapezium**

Question 2

180 - 68 - 94 — M1

18° — A1

scalene and obtuse-angled — B1

Answer: **18°; scalene, obtuse-angled**

Question 3

decagon cao — B1

Answer: **decagon**

Question 4

360 - 210 — M1

150° — A1

parallelogram needs opposite angles equal; check pairs — B1

Answer: **150°; it cannot be a parallelogram**

Question 5

6 sides — B1

60° — B1

Answer: **6 sides, 60°**

Question 6

6 cao — B1

Answer: **6**

Question 7

180 - 70 - 56 — M1

54° — A1

scalene and acute-angled — B1

Answer: **54°; scalene, acute-angled**

Question 8

360 - 269 — M1

91° — A1

parallelogram needs opposite angles equal; check pairs — B1

Answer: **91°; it cannot be a parallelogram**

Question 9

10 sides — B1

36° — B1

Answer: **10 sides, 36°**

Question 10

360 - 112 - 106 - 76 or 360 - 294 — M1

66° cao — A1

Answer: **66°**

Question 11

180 - 36 - 35 — M1

109° — A1

scalene and obtuse-angled — B1

Answer: **109°; scalene, obtuse-angled**

Question 12

square cao — B1

Answer: **square**

Question 13

pentagon cao — B1

Answer: **pentagon**

Question 14

12 - 3 or counts all other vertices excluding the two neighbours — M1

9 cao — A1

Answer: **9**

Question 15

uses P = 2(length + width) or adds sides: 12 + 5 + 12 + 5 oe — M1

34 cm cao — A1

Answer: **34 cm**

Question 16

5 sides — B1

72° — B1

Answer: **5 sides, 72°**

Question 17

360 - 199 — M1

161° — A1

parallelogram needs opposite angles equal; check pairs — B1

Answer: **161°; it cannot be a parallelogram**

Question 18

180 - 90 - 33 — M1

57° — A1

scalene and right-angled — B1

Answer: **57°; scalene, right-angled**

Question 19

360 - 65 - 118 - 44 or 360 - 227 — M1

133° cao — A1

Answer: **133°**

Question 20

(a) 7 — B1

(b) 7 — B1

Answer: **(a) 7, (b) 7**

Question 21

identifies the triangle as isosceles cao — B1

Answer: **isosceles**

Question 22

uses area = 1/2 x d1 x d2 or computes 0.5 x 10 x 16 oe — M1

calculates 80 oe — M1

80 cm² cao — A1

Answer: **80 cm^2**

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Question 23

rhombus **B1**

Answer: **Rhombus**

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