8.2 Geometry: Properties of Shapes and Angles: 30-minute Pack

NCETM National Curriculum (2014) Mathematics - KS2 Geometry: Properties of Shapes · Calculators not allowed · about 30 minutes

Total Marks

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 Write down the number of lines of symmetry in each shape.

(a) A square **(1)**

.....

(b) An isosceles triangle (not equilateral) **(1)**

.....

2 A straight line has three angles marked on one side of it, meeting at the same point: 2x degrees, (x + 10) degrees and (3x - 10) degrees. Work out the size of each of the three angles.

(4)

3 A regular polygon has 9 sides. It can be split into triangles by drawing lines from one vertex to every other vertex. Use this fact to work out the sum of the interior angles of the polygon.

(3)

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4 3 identical circles are drawn in a straight row, touching each other. Each circle has a radius of 37 cm.

How long is the whole row?

Answer: ___ cm

(2)

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5 How many sides does a decagon have?

Answer: ___

(1)

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6 Point A is at (-6, 2). It is translated by the vector (3, -5), where the first number is the move to the right and the second is the move up.

What are the coordinates of the image of A?

Answer: (___, ___)

(2)

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7 How many faces are in a net of a triangular prism?

Answer: ___

(1)

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8 An isosceles triangle has two equal angles of 79 degrees each.

What is the third angle?

Answer: ___ degrees

(2)

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9 Three angles in a quadrilateral are 51, 75 and 85 degrees.

What is the fourth angle?

Answer: ___ degrees

(2)

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10 A circle has a diameter of 12 cm. What is its radius?

Answer: ___ cm

(1)

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11 What is the name of a polygon with 9 sides?

Answer: ___

(1)

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12 I am a quadrilateral. I have 0 lines of symmetry and 2 pairs of parallel sides.

What shape am I?

Answer: ___

(2)

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13 Point B is at (8, 6). It is reflected in the mirror line x = 5.

What are the coordinates of the image of B?

Answer: (___, ___)

(2)

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Mark scheme · 8.2 Geometry: Properties of Shapes and Angles: 30-minute Pack

A correct answer earns full marks unless the question asks for working, a method, proof or explanation.

Question 1

(a) 4 cao **B1**

(a) Answer: **4**

(b) 1 cao **B1**

(b) Answer: **1**

Question 2

correct equation formed, e.g. 2x + (x + 10) + (3x - 10) = 180 **M1**

correct simplification, e.g. 6x = 180, dependent on the previous method mark **M1**

x = 30 cao **A1**

all three angles correct: 60 degrees, 40 degrees and 80 degrees **A1**

Answer: **x = 30; the three angles are 60 degrees, 40 degrees and 80 degrees**

Question 3

correct number of triangles identified, 9 - 2 = 7 **M1**

7 x 180 seen or implied, dependent on the previous method mark **dM1**

1260 degrees cao **A1**

Answer: **1260 degrees**

Question 4

diameter 74 seen **M1**

222 cm cao **A1**

Answer: **222 cm**

Question 5

10 cao **B1**

Answer: **10**

Question 6

adds the vector **M1**

(-3, -3) cao **A1**

Answer: **(-3, -3)**

Question 7

5 cao **B1**

Answer: **5**

Question 8

158 seen **M1**

22 degrees cao **A1**

Answer: **22 degrees**

Question 9

211 seen **M1**

149 degrees cao **A1**

Answer: **149 degrees**

Question 10

6 cm cao **B1**

Answer: **6 cm**

Question 11

nonagon cao **B1**

Answer: **nonagon**

Question 12

eliminates at least one shape **M1**

parallelogram cao **A1**

Answer: **parallelogram**

Question 13

same distance from the mirror line **M1**

(2, 6) cao **A1**

Answer: **(2, 6)**

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