KS2.M-Y4M2 Perimeter and Area

Calculators not allowed · about 45 minutes

Total Marks

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 A rectangle has length 12 cm and width 5 cm. Work out its perimeter.

(1)

2 A square has side length 9 cm. Write down its perimeter.

(1)

3 The perimeter of a rectangle is 30 cm. One side is 8 cm. Work out the length of the other side.

(2)

4 Find the perimeter of the L-shaped figure on a 1 cm square grid. The shape is made from a 5 by 4 rectangle with a 2 by 2 square removed from one corner. Give your answer in centimetres.

(2)

5 A rectangle on a square grid measures 7 squares by 3 squares. What is its area in square centimetres if each small square is 1 cm by 1 cm?

(1)

6 A shape on a 1 cm grid is made from two rectangles. One is 4 by 3 and the other is 3 by 2. They are joined edge to edge with no overlap, along an edge of length 2 cm. Work out the area of the combined shape in square centimetres.

(2)

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7 A 3 by 5 rectangle and a 4 by 4 square both use 1 cm squares. Explain whether they could have the same area. Give a reason for your answer.

(2)

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8 On a 1 cm grid, a shape has outer edge lengths 6, 2, 3, 1, 4 and 3 cm in order around the shape. Find the perimeter of the shape.

(2)

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9 A square has area 49 cm2. What is the length of one side of the square?

(1)

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10 A rectangle floor is 8 squares by 5 squares. A cupboard covers 2 squares by 3 squares in one corner. How many 1 cm by 1 cm squares of floor are left around the cupboard?

(2)

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11 A rectangle has length 24 cm and width 2 cm. What is its perimeter?

(1)

12 A rectangle is 9 cm long and 6 cm wide. Work out its area in square centimetres.

(1)

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13 A rectangle is 7 cm by 5 cm. The length is increased by 3 cm. Find the new perimeter.

(2)

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14 Explain whether two different shapes can have the same perimeter but different areas. Give an example or a reason.

(2)

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15 On a 1 cm grid a 4 by 4 square has one corner square removed. What is the area of the remaining shape in square centimetres?

(2)

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16 A rectilinear shape has three known side lengths on the outer boundary: 6 cm, 3 cm and 4 cm. The other three outer sides are equal in length. The perimeter is 30 cm. Find the length of each of the three equal sides.

(2)

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17 A rectangle measures 6 cm by 4 cm. A boarder 1 cm wide is added all the way around (outside the rectangle). What is the new perimeter of the larger rectangle?

(2)

18 A hall measures 3 m by 4 m. School tiles are 1 m by 1 m squares. How many tiles are needed to cover the whole hall? Show your working.

(2)

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19 A rectangle has area 24 cm2 and one side is 6 cm. Find the length of the other side.

(1)

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20 Two rectangles are shown. Rectangle A is 6 cm by 3 cm. Rectangle B is 7 cm by 2 cm. Which rectangle has the larger area and which has the larger perimeter? Show working to justify both answers.

(3)

Mark scheme · KS2.M-Y4M2 Perimeter and Area

Question 1

- **B1** Perimeter 34 cm cao
- Answer: **34 cm**

Question 2

- **B1** Perimeter 36 cm cao
- Answer: **36 cm**

Question 3

- **M1** Method to halve 30 and subtract 8, or show 2x + 2*8 = 30 then solve for x
- **B1** 7 cm cao
- Answer: **7 cm**

Question 4

- **M1** Correct method to follow outer edges or add side lengths of the L shape
- **B1** Perimeter 18 cm cao
- Answer: **18 cm**

Question 5

- **B1** 21 cm2 cao
- Answer: **21 cm2**

Question 6

- **M1** Method adding areas 4x3 + 3x2 or 12 + 6 (no overlap to subtract, as the rectangles only share a boundary edge)
- **B1** 18 cm2 cao
- Answer: **18 cm2**

Question 7

- **B1** Correct statement about areas: 3x5 = 15 and 4x4 = 16
- **B1** Reason that areas are not the same because 15 is not equal to 16 cao
- Answer: **No. 3x5 = 15 cm2 and 4x4 = 16 cm2, so the areas are different.**

Question 8

- **M1** Correct method to add the given side lengths
- **B1** Perimeter 19 cm cao
- Answer: **19 cm**

Question 9

- **B1** 7 cm cao
- Answer: **7 cm**

Question 10

- **M1** Correctly find floor area 8x5 = 40 and cupboard area 2x3 = 6
- **B1** 34 cm2 cao
- Answer: **34 cm2**

Question 11

- **B1** 52 cm cao
- Answer: **52 cm**

Question 12

- **B1** 54 cm2 cao
- Answer: **54 cm2**

Question 13

- **M1** Correct new length 10 and method to calculate perimeter 2x(10+5)
- **B1** 30 cm cao
- Answer: **30 cm**

Question 14

- **B1** Statement that shapes can have same perimeter but different areas
- **B1** Reason or example e.g. 6x2 rectangle (area 12) and 4x3 rectangle (area 12) is equal area example is acceptable; better example: 5x3 (area 15) and 6x2 (area 12) with same perimeter 16 shows different areas
- Answer: **Yes. For example, a 6 by 2 rectangle and a 5 by 3 rectangle both have perimeter 16 cm, but areas 12 cm2 and 15 cm2 so areas differ.**

Question 15

- **M1** Correct method 4x4 = 16 then subtract 1
- **B1** 15 cm2 cao
- Answer: **15 cm2**

Question 16

- **M1** Method: subtract known sides 6+3+4 = 13 from 30 to get 17, then divide by 3
- **B1** Each equal side is 17/3 cm or 5 2/3 cm cao
- Answer: **5 2/3 cm**

Question 17

- **M1** New dimensions 8 by 6 found by adding 1 cm each side to length and width
- **B1** Perimeter 28 cm cao
- Answer: **28 cm**

Question 18

- **M1** Method to multiply 3 x 4 to find area in square metres
- **B1** 12 tiles cao
- Answer: **12**

Question 19

- **B1** 4 cm cao
- Answer: **4 cm**

Question 20

- **M1** Correct area calculations: A = 6x3 = 18 and B = 7x2 = 14, or equivalent
- **M1** Correct perimeter calculations: Perimeter A = 2x(6+3) = 18 and Perimeter B = 2x(7+2) = 18
- **B1** Answer stating A has larger area (18 > 14) and perimeters are equal (18 cm) cao
- Answer: **Rectangle A has larger area; both have equal perimeter 18 cm.**