1.8 Reasoning and Problem Solving (Year 4): 30-minute Pack

Total Marks

Calculators not allowed · about 30 minutes

Name: _____ Date: ____ / ____ / _____

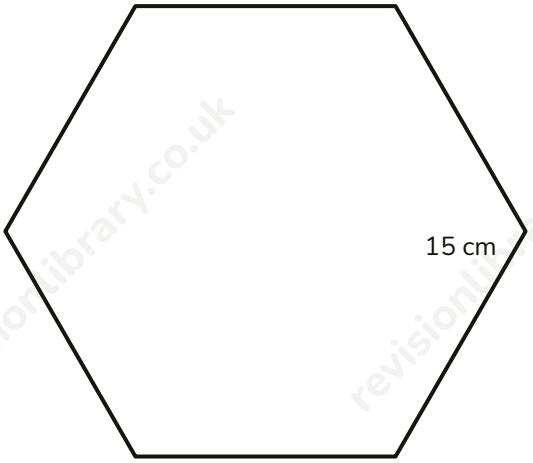
Answer ALL questions. Show all your working.

1 A regular hexagon has sides of length 15 cm.

What is its perimeter?

Answer: ___ cm

Diagram NOT accurately drawn



(2)

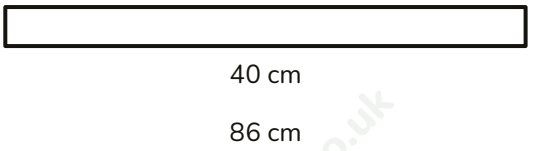
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2 A rectangle has a perimeter of 86 cm. Its length is 40 cm.

What is its width?

Answer: ___ cm

Diagram NOT accurately drawn



(2)

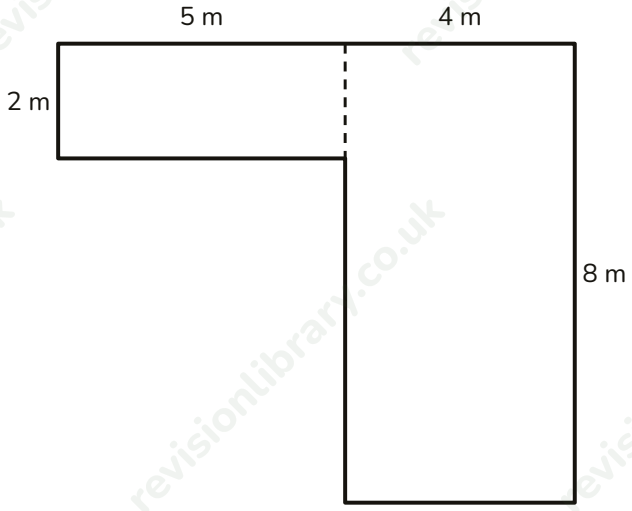
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3 An L-shape is made from two rectangles joined together. The first rectangle is 5 m by 2 m. The second is 4 m by 8 m.

What is the total area of the L-shape in square metres?

Answer: ___

Diagram NOT accurately drawn



(2)

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4 Daisy has 144 pencils. Daisy gives 7/8 of them to a friend.

How many pencils does Daisy give to the friend?

Answer: ___

(1)

---

5 Uma buys 4 packs of pencils. Each pack has 12 pencils. How many pencils does Uma have?

Answer: ___

(1)

---

6 In a class of 21 pupils, 13 like cheese, 16 like ham and 9 like both.

How many pupils like neither?

Answer: ___

(2)

---

7 Work out 3/5 of 40.

Answer: ___

(1)

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8 A rectangle is 14 m long and 3 m wide.

What is its area in square metres?

Answer: ___

(1)

---

9 George has 48 notebooks and puts 8 in each box. How many boxes are filled?

Answer: ___

(1)

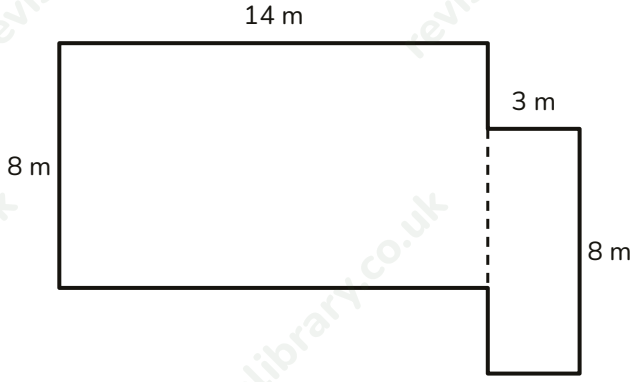
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10 An L-shape is made from two rectangles joined together. The first rectangle is 14 m by 8 m. The second is 3 m by 8 m.

What is the total area of the L-shape in square metres?

Answer: ___

Diagram NOT accurately drawn



(3)

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11 A school orders packs of pencils. Each pack has 10 pencils and costs 85p. They order 14 packs. What is the total cost in pounds and pence?

(2)

---

12 A puzzle: Three friends share a bundle of carrots. Ali takes twice as many as Ben. Cara takes 5 fewer than Ali. Together they take 83 carrots. Explain whether this is possible and show why or why not.

(4)

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13 Tom has three boxes. The first box has 24 marbles, the second has twice as many as the first, and the third has 6 fewer than the second. How many marbles are there altogether?

(2)

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Mark scheme · 1.8 Reasoning and Problem Solving (Year 4): 30-minute Pack

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

Question 1

6 x 15	**M1**
90 cm cao	**A1**

Answer: **90 cm**

Question 2

86 - 80 = 6 seen	**M1**
3 cm cao	**A1**

Answer: **3 cm**

Question 3

finds the area of each rectangle	**M1**
42 square metres cao	**A1**

Answer: **42 square metres**

Question 4

126 cao	**B1**

Answer: **126**

Question 5

48 cao	**B1**

Answer: **48**

Question 6

13 + 16 - 9 = 20 seen	**M1**
1 cao	**A1**

Answer: **1**

Question 7

24 cao	**B1**

Answer: **24**

Question 8

42 square metres cao	**B1**

Answer: **42 square metres**

Question 9

6 cao	**B1**

Answer: **6**

Question 10

finds the area of each rectangle	**M1**
adds the two areas	**M1**
136 square metres cao	**A1**

Answer: **136 square metres**

Question 11

Multiply 85p x 14 seen (85 x 14 = 1190)	**M1**
£11.90 cao	**B1**

Answer: **£11.90**

Question 12

Set up relations: if Ben = b then Ali = 2b and Cara = 2b - 5, and write sum 2b + b + (2b - 5) = 83	**M1**
Solve equation: 5b - 5 = 83 => 5b = 88 => b = 17.6 seen or attempt to solve	**M1**
State that b is not a whole number so the split into whole carrots is not possible	**B1**
Conclude and justify: therefore they cannot share 83 carrots with given whole-number relations cao	**B1**

Answer: **Not possible because Ben would need 17.6 carrots, not a whole number**

Question 13

Find second box (24 x 2 = 48) and third box (48 - 6 = 42) or equivalent working	**M1**
114 cao	**B1**

Answer: **114**

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