THIRD SPACE LEARNING

100 Reasoning and Problem Solving Questions for Year 6

100 SATs style reasoning and problem solving practice questions grouped by topic

Year 6

Contents

About this resource

We recommend pupils do not use a calculator.

There are many ways to use this resource.
You could select topics that your pupils need to recap to improve their confidence and work through a selection of questions throughout a week.
Alternatively, you could select a question from each group for pupils to work though to expose them to different topics, as they would see in an exam.
Pupils could participate in the marking of the questions they have answered. This can be used to provoke discussions about methods used to solve a question, as well as drawing attention to the number of marks associated with each question.

Suggestions for pupils

- Follow the instructions for each question.
- Use the space around the question to complete any working out.
- You may get a mark for showing your method.
- Remember to go back and check your work.

Marks

The number under each box on the right hand side tells you the maximum number of marks for each question.

Questions

1 Write the number three million, twenty five thousand and seventeen in figures.

1 mark

2 What is the value of the digit 7 in this number?
370,423

1 mark

3 Write this number in words:
8,001,500

1 mark

4 Write down the value of this Roman numeral:

MMCDXV

1 mark

---

5 295,362 is partitioned (expanded).
Fill in the missing numbers:

[　　　] + 90,000 + 5,000 + [　　　] + 60 + 2

1 mark

---

6 What number is exactly 40,000 bigger than 1,120,107?

1 mark

---

7 Write the number that is 300,000 less 8 million.

1 mark

8 403 x 100 = [   ]

[ ] *1 mark*

---

9 What is the value of the digit 3 in this number?

405.123

[   ] [ ] *1 mark*

---

10 8,902.55 is partitioned (expanded).
Fill in the missing numbers

8,000 + 900 + [   ] + [   ] + [   ] [ ] *1 mark*

---

11 The population of a country is 7,350,361. If it increases by 800,000 over the next 5 years, what will be the population in 5 years?

[   ] [ ] *1 mark*

12 How many times greater is the value of the digit 8 in 8,423,025 than the value of the digit 8 in 3,086,504?

1 mark

---

13 Place these numbers in ascending order.

101,111   1,011,101   100,999   110,001

1 mark

---

14 Insert the symbol < or > in the missing space to make this statement correct.

-27 ☐ -16

1 mark

---

15 Which number lies exactly halfway between 21,033 and 21,039?

1 mark

16 Round 5,829,051 to the nearest 10,000

1 mark

---

17 How many times smaller is the value of the digit 2 in 578,209 than the value of the digit 2 in 256,414 ?

1 mark

---

18 Circle two numbers that add together to equal 0.45

0.4   0.5   0.41   0.05

1 mark

---

19 Order these numbers in descending order.

4.01   4.6   4.16   4.101

1 mark

20 905 ÷ 1,000 =

1 mark

---

21 Write the number that is exactly 3 less than ten million.

1 mark

---

22 Which number lies exactly between 18.7 and 18.8

1 mark

---

23 What is the difference between 403.6 and 403.54?

1 mark

24 Round 35.72 to the nearest one decimal place.

1 mark

25 What number is exactly 0.005 greater than 423.096?

1 mark

26 Choose two numbers to complete this calculation.

[ ] + [ ] =72

19   22   51   33   53

1 mark

---

27 Fill in the missing number.

63 + 28 = 100 − [ ]

1 mark

---

28 2,483 + 5,048 =

[ ]

1 mark

---

29 [ ] = 78,425 − 13,214

1 mark

---

30 $4^2 + 8 =$

[ ]

1 mark

31 **a** There were 2,408 people on board a cruise ship. At the next port, it takes on 557 more passengers, but 379 people get off. How many passengers are on board the ship now?

⬜

1 mark

b If 658 of these passengers are children, how many adults are on board?

⬜

1 mark

32 Each number in the addition wall is made from adding the numbers in the two boxes directly below.
E.g

```
      34
   20    14
```
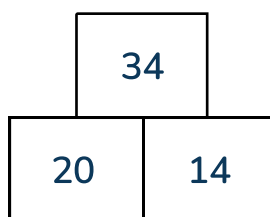
Complete this addition wall.

```
            117
      57   61
   34  23      18
```
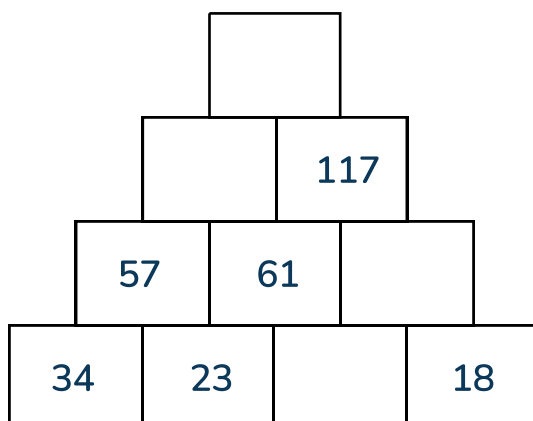
1 mark

33   8,000,000 − 10 =

1 mark

---

34   Circle two numbers that have a difference of 230

340   580   250   810   120

1 mark

---

35   7.34 + 32.08 + 403.9 =

1 mark

---

36   Mrs Redley spent £23,407 on a new kitchen and then spent £2,073 on her grandchildren's Christmas presents. She has £19,098 left in her bank account. How much money did she have to begin with?

2 mark

37 A new sports car costs £105,099. After 3 years, it's value is reduced by £47,520. How much is the car worth after 3 years?

1 mark

38 8 − 2.34 =

1 mark

39 The prices in a cafe are shown in the table below.

Food Item	Price
Pizza	£1.75
Chips	95p
Salad	£1.36
Burger	£1.43
Hotdog	87p

Jake buys a hotdog and a salad. Audrey buys a pizza and chips. How much more does Audrey spend than Jake?

2 mark

40 After his birthday, Carter has 5,238 football cards having received 257 cards from his Gran and 93 cards from his brother. How many cards did Carter have before his birthday?

2 mark

41 This table shows the number of visitors to an art gallery at different months throughout the year

3 month Period	Total Visitors
Jan-March	42 371
Apr-Jun	60 158
Jul-Sept	98 044
Oct-Dec	77 108

How many more visitors were there in the last half of the year than in the first half of the year?

2 mark

42 $113.26 - 28.5 =$

1 mark

43 7,205,415 = ☐ + 4,923,807

1 mark

---

44 Fill in the missing numbers to make this calculation correct:

$$\begin{array}{ccccc} \boxed{} & 3 & 4 & \boxed{} & 1 \\ & \boxed{} & \boxed{} & 7 & 6 \\ \hline 2 & 5 & 7 & 5 & 7 \end{array}$$

1 mark

---

45 23,672 more people attended the Star Wars exhibition this year than last year. If 216,479 people went this year, how many people went last year?

1 mark

46 A farmer has 42.6kg of animal feed. Each day he uses 5.75kg for his cows; 1,950g for his hens and 2,425g for his sheep. After 2 days, how much feed will he have left ?

2 mark

47 The post office received 1,327,401 letters in December and 864,058 letters in January. Estimate the total number of letters received in December and January?

a Estimate the answer by rounding to the nearest 10,000 first.

1 mark

b What is the actual total number of letters received ?

1 mark

48 The table below shows the average temperature in Antarctica at different times of the year.

Time of the Year	Temperature (ºC)
Jan	-25
Apr	-1
Aug	12
Dec	-22

What is the difference in temperature between January and August?

1 mark

49 Jamie has to drive 327.3 miles to Wales and then a further 186.9 miles to Devon. During his drive, he stops for a 10 minute break after 293.4 miles. How many more miles will he still need to drive to reach Devon?

2 mark

50 Ella goes on a shopping spree and buys a hand bag for £126.58; head phones for £37.25 and a pair of sunglasses. She had £200 to spend and now has the following left in her purse:

£10   £5   £2   50p   20p   5p

What did she pay for her sunglasses?

2 mark

51   What fraction of the shape is shaded?
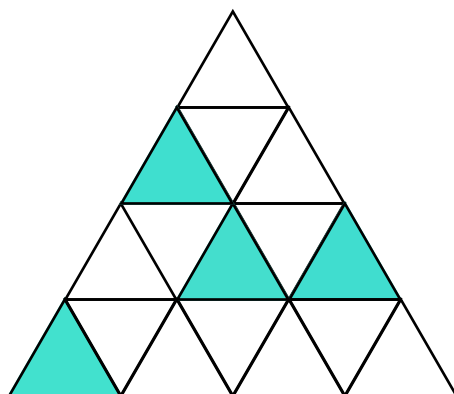
1 mark

---

52   Shade in $\frac{2}{3}$ of this pattern
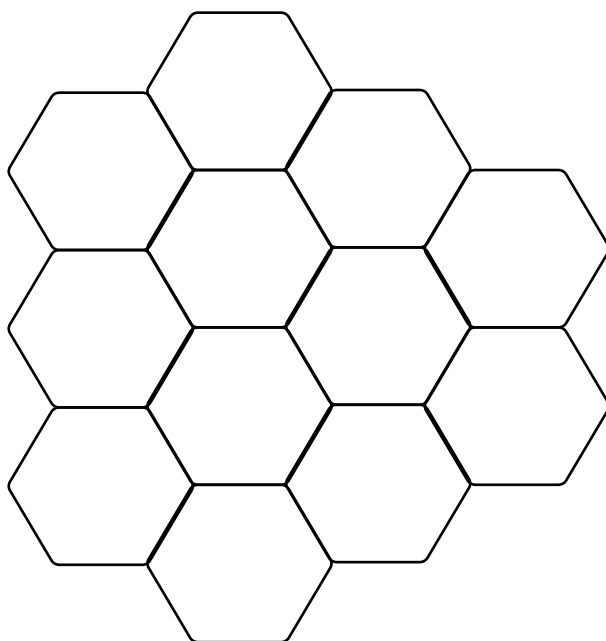
1 mark

53 Write the missing numbers on the number line.

$$\boxed{} \qquad \frac{1}{4} \qquad \frac{1}{2} \qquad \boxed{} \qquad 1 \qquad \boxed{}$$

1 mark

---

54 Write this fraction in its simplest form.

$$\frac{42}{56}$$

1 mark

---

55 $\frac{2}{3} \times 6 =$

1 mark

---

56 Find an equivalent fractions to represent $\frac{5}{6}$ as thirtieths

1 mark

57 Put these fractions in descending order:

$1\frac{3}{6}$ $\quad$ $1\frac{1}{12}$ $\quad$ $1\frac{2}{3}$ $\quad$ $1\frac{3}{4}$

1 mark

---

58 $\frac{9}{15}+\frac{4}{15}=$

1 mark

---

59 Find $\frac{3}{10}$ of 360ml

1 mark

---

60 $\frac{3}{4} \times 5 =$

1 mark

$\quad$

61 Frankie has $\frac{7}{8}$ of a pizza left. Perry eats $\frac{5}{8}$ of the original pizza. How much pizza has Frankie got now?

1 mark

62 Write 0.16 as a fraction

1 mark

63 $\frac{4}{9} + \frac{2}{3} =$

1 mark

64 7.63 x 8 =

1 mark

65 Circle three numbers that add up to 1

$\frac{1}{4}$ 0.5   10% $\frac{7}{10}$ 15%   0.2

1 mark

66 Find 35% of 780kg

1 mark

67 $\dfrac{7}{3} + \dfrac{9}{14} =$

1 mark

68 Look at this scaled drawing of a school playground.
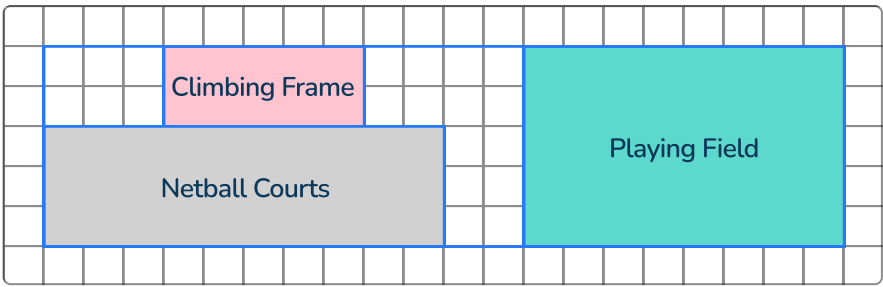
a What percentage of the playground is field space?

1 mark

b How much of the playground does the netball courts take up? Write your answers as a fraction?

1 mark

c What amount of play ground is taken up by the climbing frame ? Write your answer as a decimal.

1 mark

69 $3\frac{2}{3} - 1\frac{3}{4} =$

1 mark

70 There are 31 children in the class.
Tia says, " 40% of the class are boys."
Is this possible? Why? Why not?

1 mark

---

71 $\dfrac{3}{7} \div 5 =$ [   ]

1 mark

---

72 At the sweet factory, 3,600 sweets are made each hour. $\dfrac{5}{9}$ of the sweets are lollipops. 20% of the sweets are gummy bears and the rest are chocolate bars. How many chocolate bars are manufactured each hour?

1 mark

---

73 During a sale, prices were reduced by 20%. Before the sale, the phone cost £165. How much does the phone cost during the sale?

1 mark

74 The population of the UK is 65.215 million. The population of USA is 5 times this size. What is the population of the USA?
Round your answer to 2 decimal places.

1 mark

75 Pippa had some money. She spent $\frac{1}{3}$ of it on a new pencil case. She then spent $\frac{1}{2}$ of what she had left on a new set of pens. Her pens cost her £18. How much money did Pippa have to start with?

2 mark

76 Here are three leaves.

| A | B | C |

Write <, > or = to compare the lengths of the leaves.

Length A [   ] Length B

Length B [   ] Length C

2 mark

77 Which of these 2-D shapes is not a hexagon?

| A | B | C | D |

[   ]
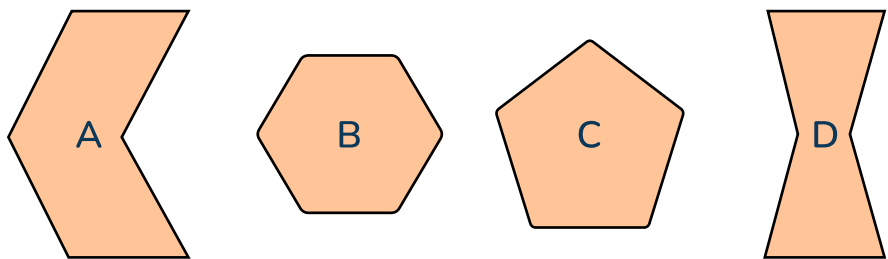
1 mark

78

Which of these shapes have vertical line symmetry?

1 mark

79

Name of 3-D Shape: 2-D Shape on its surface:

Cylinder   Square

Triangular Prism   Circle

Cube   Rectangle

Draw lines to match each 3-D shape with a 2-D shape that appears on its surface.

1 mark

80 Tick the angles that are greater than a right angle.
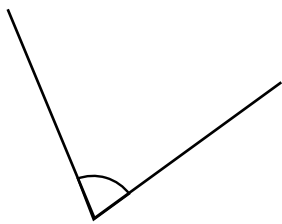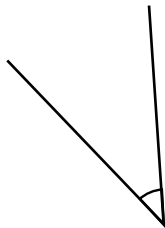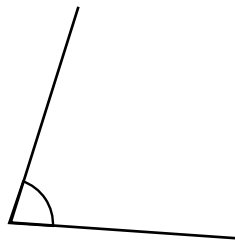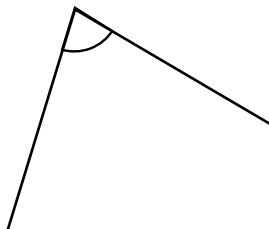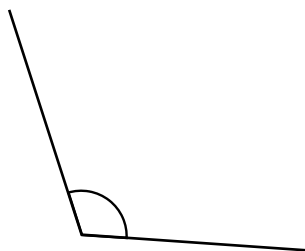
1 mark

---

81 Calculate the perimeter of this shape.

3 cm

5 cm

Not to scale

cm
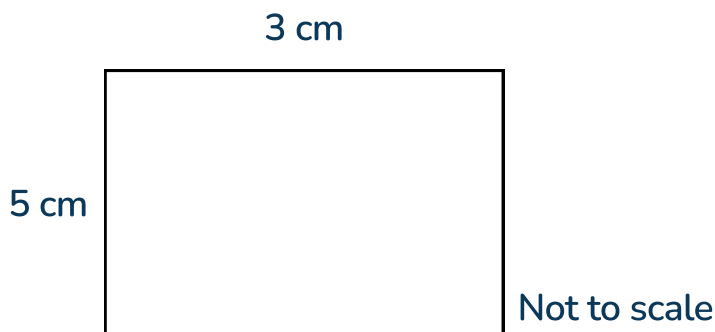
1 mark

82 Complete the sentences below by putting a number into the boxes.

Number of right angles in a half turn :

Number of right angles in a full turn :
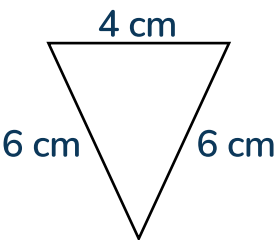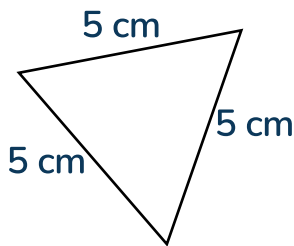
Number of right angles in a quarter turn :

2 mark

---

83 Write one quadrilateral name in each part of this Carroll Diagram.

parallelogram   square   rhombus   rectangle

	All Sides are equal	Not All Sides are equal
Has Right Angles		
Has No Right Angles		

2 mark

84 Match up each triangle with its correct name and property.
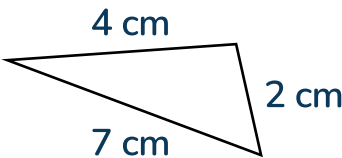
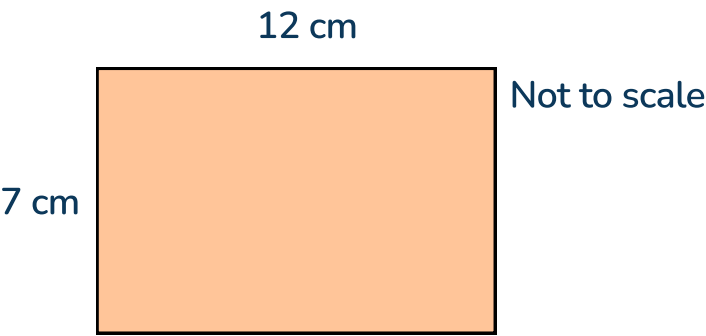| scalene triangle	equilateral triangle	isosceles triangle

all sides the same length	no sides the same length	two sides the same length

1 mark

---

85 A rectangular sticky label has a width of 7cm and length of 12cm.

12 cm

Not to scale

7 cm

What is the perimeter of the label?

cm

1 mark

86   Fran wants to make a rectangular enclosure for her rabbit to run around in the garden safely.

She has 20m of wire fence.

The length and width of the rectangle must be in whole metres.
Explain how Fran could find all the possible rectangles she could make using the wire
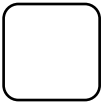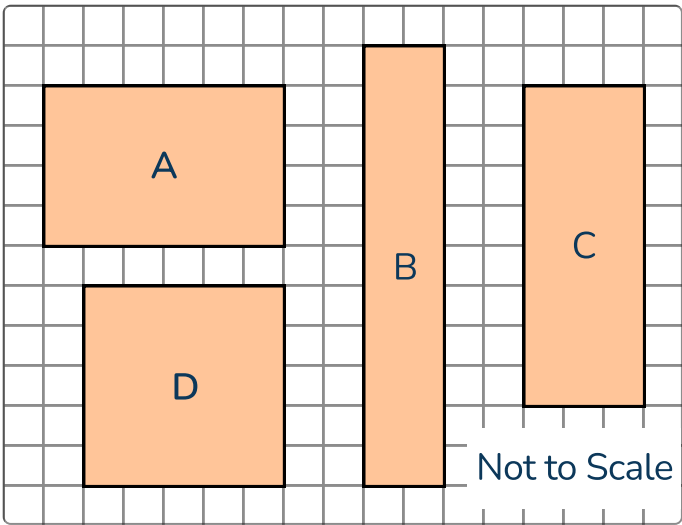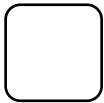
_____

_____

_____

_____

1 mark

87 Four pieces of paper are placed on a 1cm square grid.

Not to Scale

Complete the table to show the areas of the pieces of paper.

Shape	Area (cm²)
A	
B	
C	
D	

2 mark

88 A room has an area of 24m²

Tick all of the dimensions that the room could have.

a   length = 6m, width = 4m

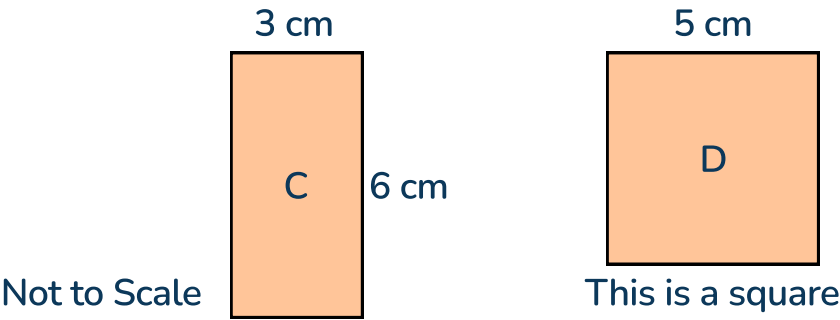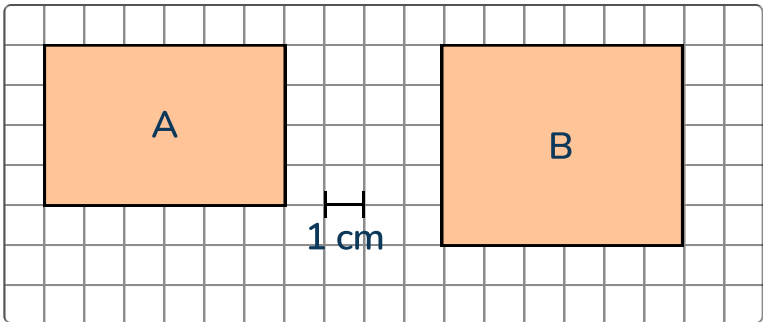b   length = 6m, width = 6m

c   length = 10m, width = 2m

d   length = 8m, width = 3m

1 mark

---

89 Write the letters A to D in order of size, from largest to smallest area.

A

B

1 cm

3 cm

5 cm

C   6 cm

D

Not to Scale

This is a square

Largest   Smallest   *1 mark*
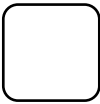
90 Complete these statements with the words always, sometimes or never.
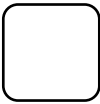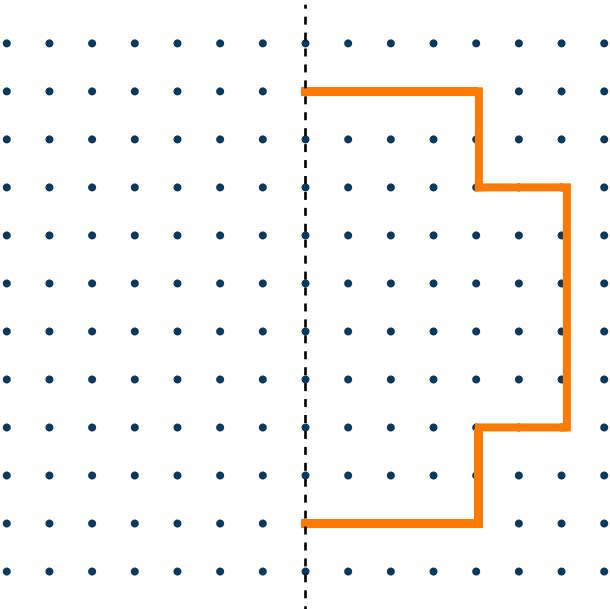
An octagon is [   ] a regular shape.

A square is [   ] a regular shape.

An equilateral triangle is [   ] an irregular shape.
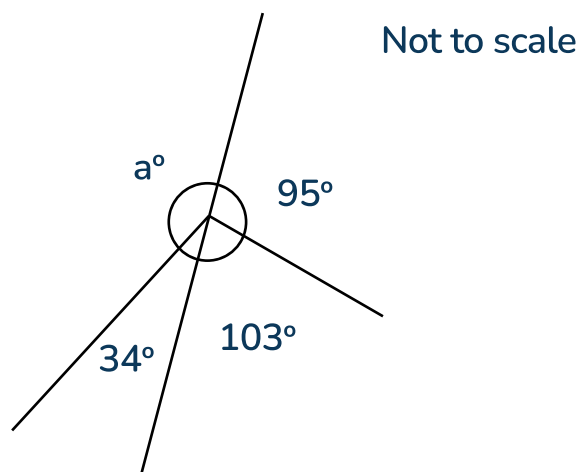
A rhombus is [   ] an irregular shape.

2 mark

---

91 Complete the drawing so that it has ONE line of symmetry

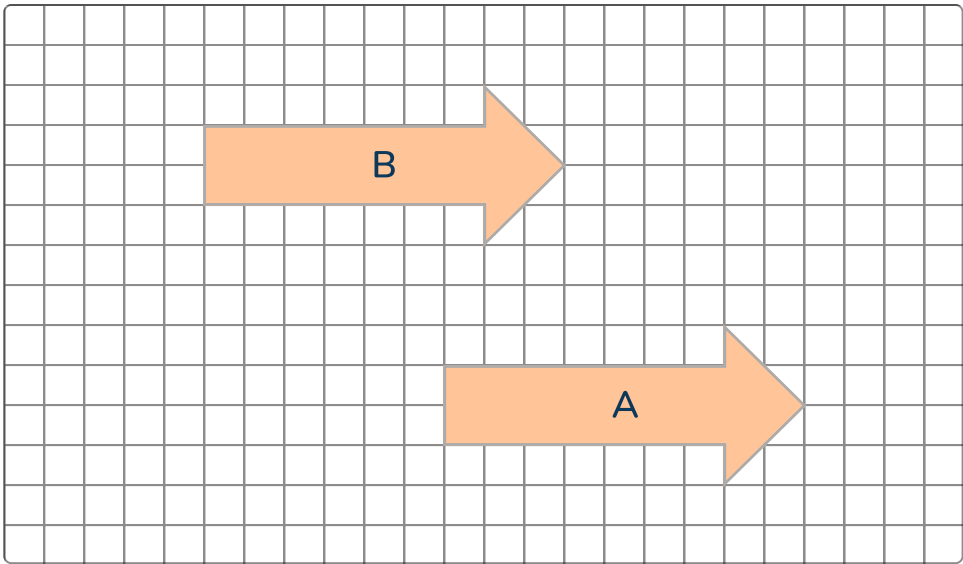*1 mark*

92

Not to scale

$a°$

95º

34º   103º

What is the value of angle a?

Angle a=

1 mark

93   These two arrows are identical.

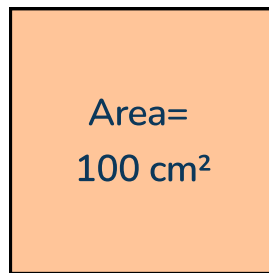Complete the boxes to describe the translation of arrow A to arrow B

The arrow has moved ⬚ squares up and ⬚

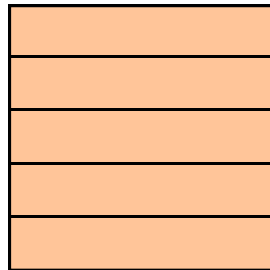squares to the left.

1 mark

94 The area of this square is 100 cm²

Area=
100 cm²

Not to scale

The square is split into five identical rectangles.
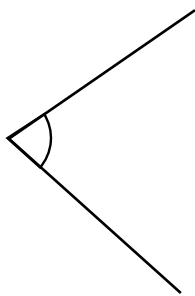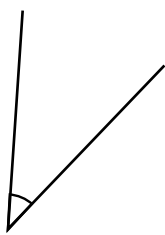
Not to scale
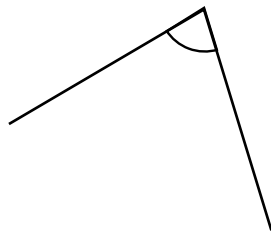
What is the perimeter of one of the rectangles ?
Don't forget your units.
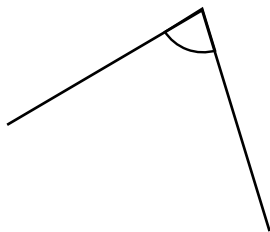
2 mark
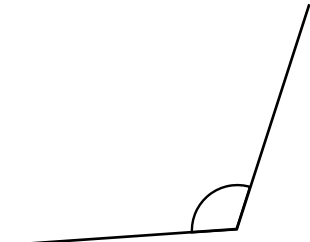
95 Tick the angles that are greater than a right angle.
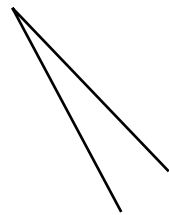
1 mark

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96 Tallulah has drawn a rectangle.

The length of the rectangle is double its height.

The height of the rectangle is 6cm.

What is the area of Tullulah's rectangle? Don't forget your units.

2 mark

97 Finlay is playing a big game of snakes and ladders.
On his board, there are 13 squares in each row and 15 squares in each column.
How many squares are there on the board altogether?

2 mark

98 The area of a farmer's field is 703m².

The field is rectangular. The width of the field is 19m.

19 m

Not to scale

What is the height of the field? Don't forget your units.

2 mark

99   Here is a set of squares around a shaded space.
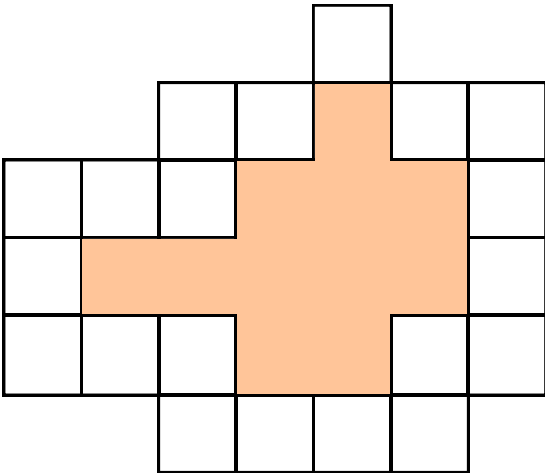
What is the area of the shaded space?

squares	

1 mark

---

100   A large rectangle is made up of five smaller rectangles.
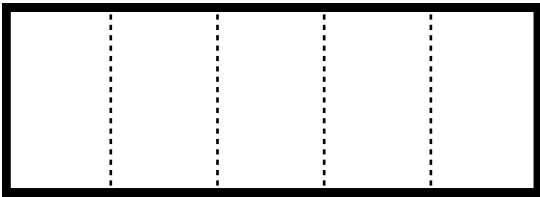
Here are the measurements of each smaller rectangle.

12cm

3cm

Not to scale
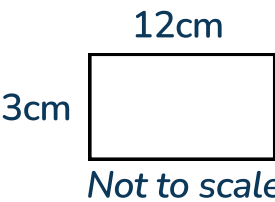
What is the perimeter of the large rectangle?

2 mark

Answers

Question Number	Question	Answer	Acceptable answer or additional guidance	Marks
1	Write the number three million, twenty five thousand and seventeen in figures	3,025,017		1
2	What is the value of the digit 7 in this number? 370,423	70,000	Accept 7 ten thousands or 70 thousands	1
3	Write this number in words: 8,001,500	Eight million, one thousand and five hundred		1
4	Write down the value of this Roman numeral: MMCDXV	2,415		1
5	295,362 is partitioned (expanded). Fill in the missing numbers:	200,000 and 300	Accept numbers written in either order	1
6	What number is exactly 40,000 bigger than 1,120,107?	1,160,107		1

Question Number	Question	Answer	Acceptable answer or additional guidance	Marks
7	Write the number that is 300,000 less 8 million.	7,700,000		1
8	403 x 100 =	40,300		1
9	What is the value of the digit 3 in this number? 405.123	0.003 or 3 thousandths		1
10	8,902.55 is partitioned (expanded). Fill in the missing numbers.	2 + 0.5 + 0.05	Accept the three numbers written in any order	1
11	The population of a country is 7,350,361. If it increases by 800,000 over the next 5 years, what will be the population in 5 years?	8,150,361		1
12	How many times greater is the value of the digit 8 in 8,423,025 than the value of the digit 8 in 3,086,504?	100 times bigger	Accept 10 x 10 bigger	1

Question Number	Question	Answer	Acceptable answer or additional guidance	Marks
13	Place these numbers in ascending order.	100,999 101,111 110,001 1,011,101		1
14	Insert the symbol < or > in the missing space to make this statement correct -27 ? -16	<	Accept 'Less than'	1
15	Which number lies exactly halfway between 21,033 and 21,039 ?	21,036		1
16	Round 5,829,051 to the nearest 10,000	5,830,000		1
17	How many times smaller is the value of the digit 2 in 578,209 than the value of the digit 2 in 256,414 ?	1,000 times smaller	Accept 10 x 10 smaller	1
18	Circle two numbers that add together to equal 0.45	Circled 0.4 and 0.05		1
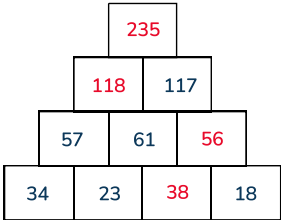
Question Number	Question	Answer	Acceptable answer or additional guidance	Marks
19	Order these numbers in descending order.	4.6 4.16 4.101 4.0 1		1
20	905 ÷ 1,000 =	0.905		1
21	Write the number that is exactly 3 less than ten million.	9,999,997		1
22	Which number lies exactly between 18.7 and 18.8	18.75		1
23	What is the difference between 403.6 and 403.54?	0.06		1
24	Round 35.72 to the nearest one decimal place	35.7		1
25	What number is exactly 0.005 greater than 423.096?	423.101		1

Question Number	Question	Answer	Acceptable answer or additional guidance	Marks
26	Choose two numbers to complete this calculation. ? + ? = 72	Circle 19 and 53	Do not accept more than two numbers circled	1
27	Fill in the missing number. 63 + 28 = 100 − ?	9		1
28	2,483 + 5,048 =	7,531		1
29	= 78,425 - 13,214	65,211		1
30	$4^2 + 8 =$	24		1
31a	There were 2,408 people on board a cruise ship. At the next port, it takes on 557 more passengers, but 379 people get off. How many passengers are on board the ship now?	2,586 people on board		1
31b	If 658 of these passengers are children, how many adults are on board?	1,928 adults		1

Question Number	Question	Answer	Acceptable answer or additional guidance	Marks
32	Complete this addition wall.	Award two marks for all four correct answers. 235 118 117 57 61 56 34 23 38 18	Award one mark for any two or three correct answers	1
33	8,000,000 − 10 =	7,999,990		1
34	Circle two numbers that have a difference of 230	Circled 580 and 810	Do not accept more than two numbers circled	1
35	7.34 + 32.08 + 403.9 =	443.32		1
36	Mrs Redley spent £23,407 on a new kitchen and then spent £2,073 on her grandchildren's Christmas presents. She has £19,098 left in her bank account. How much money did she have to begin with?	£44,578		2

Question Number	Question	Answer	Acceptable answer or additional guidance	Marks
37	A new sports car costs £105,099. After 3 years, it's value is reduced by £47,520. How much is the car worth after 3 years?	£57,579		1
38	8 – 2.34 =	5.66		1
39	The prices in a cafe are shown in the table below. Jake buys a hotdog and a salad. Audrey buys a pizza and chips. How much more does Audrey spend than Jake?	Award two marks for the correct answer of 47p If answer is incorrect, award one mark for evidence of an appropriate method with no more than one arithmetic error e.g. 87 + 136 = 224 (error) 175 + 95 = 270 270 – 224 = 46p	Accept £0.47 Do not accept £0.47p Answer need not be obtained for the award of one mark.	2
40	After his birthday, Carter has 5,238 football cards having received 257 cards from his Gran and 93 cards from his brother. How many cards did Carter have before his birthday?	4,888 cards		2

Question Number	Question	Answer	Acceptable answer or additional guidance	Marks
41	This table shows the number of visitors to an art gallery at different months throughout the year. How many more visitors were there in the last half of the year than in the first half of the year?	Award two marks for the correct answer of 72,623 more visitors If answer is incorrect, award one mark for evidence of an appropriate method with no more than one arithmetic error e.g. 98044 77108 175102 (error) 42371 + 60158 102529 175,102 − 102,529 = 72,573	Answer need not be obtained for the award of one mark.	2

Question Number	Question	Answer	Acceptable answer or additional guidance	Marks
42	113.26 – 28.5 =	84.76		1
43	7,205,415 = ___ +4,923,807	2,281,608		1
44	Fill in the missing numbers to make this calculation correct:			1
45	23,672 more people attended the Star Wars exhibition this year than last year. If 216,479 people went this year, how many people went last year?	192,807 people		1
46	A farmer has 42.6kg of animal feed. Each day he uses 5.75kg for his cows; 1,950g for his hens and 2,425g for his sheep. After 2 days, how much feed will he have left ?	Award two marks for the correct answer of 22.35kg left If answer is incorrect, award one mark for evidence of an appropriate method with no more than one arithmetic error e.g. (5.75 + 1.95 + 2.425) x 2 = 20.5 (error) 42.6 - 20.5 =22.1kg	Accept 2,235g Answer need not be obtained for the award of one mark.	2

100 Reasoning and Problem Solving Questions | Answers

Question Number	Question	Answer	Acceptable answer or additional guidance	Marks
47a	The post office received 1,327,401 letters in December and 864,058 letters in January. Estimate the total number of letters received in December and January? a) Estimate the answer by rounding to the nearest 10,000 first.	2,190,000		1
47b	b) What is the actual total number of letters received?	2,191,459 letters		1
48	The table below shows the average temperature in Antarctica at different times of the year. What is the difference in temperature between January and August?	37°C	Do not accept -37°C	1

Question Number	Question	Answer	Acceptable answer or additional guidance	Marks
49	Jamie has to drive 327.3 miles to Wales and then a further 186.9 miles to Devon. During his drive, he stops for a 10 minute break after 293.4 miles. How many more miles will he still need to drive to reach Devon?	220.8 miles		2
50	Ella goes on a shopping spree and buys a hand bag for £126.58; head phones for £37.25 and a pair of sunglasses. She had £200 to spend and now has the following left in her purse: £10, £5, £2, 50p, 20p, 5p. What did she pay for her sunglasses?	Award two marks for the correct answer of £18.42. If answer is incorrect, award one mark for evidence of an appropriate method with no more than one arithmetic error e.g. £10 + £5 + £2 + 50p + 20p + 5p = £17.75. 200 − 17.75 − 126.58 − 37.25 = £18.45 (error)	Answer need not be obtained for the award of one mark.	2
51	What fraction of the shape is shaded?	¼	Accept $\frac{4}{16}$ or equivalent	1

Question Number	Question	Answer	Acceptable answer or additional guidance	Marks
52	Shade in $\frac{2}{3}$ of this pattern	Any 8 hexagons shaded.		1
53	Write the missing numbers on the number line.	0 and $\frac{3}{4}$ both answers are needed to obtain one mark	0 must be in the first box and $\frac{3}{4}$ in the second box. Accept equivalent of $\frac{3}{4}$	1
54	Write this fraction in its simplest form. $\frac{42}{56}$	$\frac{3}{4}$	Do not accept $\frac{6}{8}$	1
55	$\frac{2}{3}$ x 6 =	4		1
56	Find an equivalent fractions to represent $\frac{5}{6}$ as thirtieths	$\frac{25}{30}$		1
57	Put these fractions in descending order:	1 $\frac{3}{4}$, 1 $\frac{2}{3}$, 1 $\frac{3}{6}$, 1 $\frac{1}{12}$		1
58	$\frac{9}{15} + \frac{4}{15}$ =	$\frac{13}{15}$	Accept equivalence	1
59	Find $\frac{3}{10}$ of 360ml	108ml		1
60	$\frac{3}{4}$ x 5 =	$\frac{15}{4}$ = 3 $\frac{3}{4}$	Accept $\frac{15}{4}$	1

Question Number	Question	Answer	Acceptable answer or additional guidance	Marks
61	Frankie has $\frac{7}{8}$ of a pizza left. Perry eats $\frac{5}{8}$ of the original pizza. How much pizza has Frankie got now?	$\frac{2}{8}$	Accept equivalence	1
62	Write 0.16 as a fraction	$\frac{16}{100}$	Accept $\frac{4}{25}$ or $\frac{8}{50}$	1
63	$\frac{4}{9} + \frac{2}{3} =$	$\frac{10}{9}$	Accept $1\frac{1}{9}$	1
64	7.63 x 8 =	61.04		1
65	Circle three numbers that add up to 1	Circled in any order 10%, $\frac{7}{10}$ and 0.2	Do not accept if more than three numbers are circled	1
66	Find 35% of 780kg	273kg		1
67	$\frac{7}{3} + \frac{9}{14} =$	$2\frac{41}{42}$		1
68a	Look at this scaled drawing of a school playground. a) What percentage of the playground is field space?	40%	Do not accept fraction or decimal equivalents	1

Question Number	Question	Answer	Acceptable answer or additional guidance	Marks
68b	b) How much of the playground does the netball courts take up? Write your answers as a fraction?	$\frac{3}{10}$ or $\frac{30}{100}$	Do not accept decimal or percentage equivalents	1
68c	c) What amount of play ground is taken up by the climbing frame ? Write your answer as a decimal.	0.1	Do not accept fraction or percentage equivalents	1
69	$3\frac{2}{3} - 1\frac{3}{4} =$	$1\frac{11}{12}$	Accept $\frac{23}{12}$	1
70	There are 31 children in the class. Tia says, " 40% of the class are boys." Is this possible? Why? Why not?	Not possible as 40% of 31 is 12.4 and you cannot not have 12.4 children who are boys	Accept similar explanations	1
71	$\frac{3}{7} \div 5 =$	$\frac{3}{35}$		1

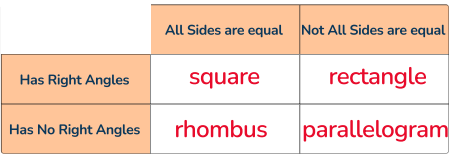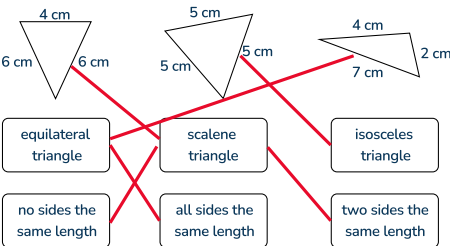| Question Number	Question	Answer	Acceptable answer or additional guidance	Marks
72	At the sweet factory, 3,600 sweets are made each hour. $5/9$ of the sweets are lollipops. 20% of the sweets are gummy bears and the rest are chocolate bars. How many chocolate bars are manufactured each hour?	880 chocolate bars		1
73	During a sale, prices were reduced by 20%. Before the sale, the phone cost £165. How much does the phone cost during the sale?	£132	Do not accept £132p	1
74	The population of the UK is 65.215 million. The population of USA is 5 times this size. What is the population of the USA?	326.08		1

Question Number	Question	Answer	Acceptable answer or additional guidance	Marks
75	Pippa had some money. She spent ⅓ of it on a new pencil case. She then spent $^{1/2}$ of what she had left on a new set of pens. Her pens cost her £18. How much money did Pippa have to start with?	Award two marks for the correct answer of £54 If answer is incorrect, award one mark for evidence of an appropriate method with no more than one arithmetic error e.g. ⅔ = £18 18 x 3 = £52 (error)	Answer need not be obtained for the award of one mark	2
76	Here are three leaves. Write <, > or = to compare the lengths of the leaves.	Length A > Length B Length B < Length C ONE mark for each correct answer	Symbols should be correctly orientated	2
77	Which of these 2-D shapes is not a hexagon?	Shape C	Shape C is a pentagon. Although only shape B is a familiar regular hexagon, children should still recognise that shapes A and D both have six sides and are hexagonal.	1
78	Which of these shapes have vertical line symmetry?	A, C and D	Letters may be given in any order.	1

Question Number	Question	Answer	Acceptable answer or additional guidance	Marks
79	Draw lines to match each 3-D shape with a 2-D shape that appears on its surface.	Name of 3D Shape: 2D Shape on its surface: Cylinder → Circle, Triangular Prism → Rectangle, Cube → Square	All three should be correctly matched.	1
80	Tick the angles that are greater than a right angle.		Both angles need to be ticked for the award of the mark	1
81	Calculate the perimeter of this shape	16cm		1
82	Complete the sentences below by putting a number into the boxes.	Award TWO marks for all three boxes completed correctly. 2 right angles are half a turn. 4 right angles are in a full turn. 1 right angle is in a quarter turn.	Award ONE mark for two boxes completed correctly	2

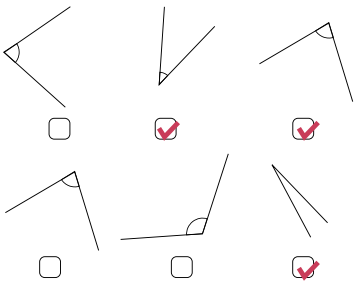| Question Number	Question	Answer	Acceptable answer or additional guidance	Marks
83	Write one quadrilateral name in each part of this Carroll Diagram.		Award TWO marks for all shapes correctly placed. Award ONE mark for three shapes correctly placed.	2
84	Match up each triangle with its correct name and property.		All shapes and properties matched correctly to achieve the mark.	1
85	A rectangular sticky label has a width of 7cm and length of 12cm. What is the perimeter of the label?	38cm		1

Question Number	Question	Answer	Acceptable answer or additional guidance	Marks
86	Fran wants to make a rectangular enclosure for her rabbit to run around in the garden safely. She has 20m of wire fence. The length and width of the rectangle must be in whole metres. Explain how Fran could find all the possible rectangles she could make using the wire.	Explanation should describe a methodical approach to finding the answer. For example: Fran could use a table to record all the different lengths and widths that give a perimeter of 20m. Fran could start with a width of 1m and a length of 9m and then increase the width by 1m each time to find all the possibilities	This is an open-ended question and has been designed to encourage children to use reasoning to describe how to make sure that they find all possibilities when investigating perimeter.	1
87	Four pieces of paper are placed on a 1cm square grid. Complete the table to show the areas of the pieces of paper.	A = 24cm² B = 22cm² C = 21cm² D = 25cm²	Award ONE mark for two or three correct areas. Both marks for all correct.	2
88	A room has an area of 24m² Tick all of the dimensions that the room could have. a) length = 6m, width = 4m b) length = 6m, width = 6m c) length = 10m, width = 2m d) length = 8m, width = 3m	A and D should be ticked.	Only award the mark for both answers	1

Question Number	Question	Answer	Acceptable answer or additional guidance	Marks
89	Write the letters A to D in order of size, from largest to smallest area.	B, D, A, C		1
90	Complete these statements with the words always, sometimes or never. An octagon is ? a regular shape. A square is ? a regular shape. An equilateral triangle is ? an irregular shape. A rhombus is ? an irregular shape.	Sometimes Always Never Always	Award ONE mark for 2 or 3 correct answers and BOTH marks for all correct answers	2
91	Complete the drawing so that it has ONE line of symmetry.		Accept slight deviance from marked points. It is worth noting that in SATs papers, any points more than 2mm out may lead to the mark not being awarded.	1

Question Number	Question	Answer	Acceptable answer or additional guidance	Marks
92	What is the value of angle a?	128 degrees.		1
93	These two arrows are identical. Complete the boxes to describe the translation of arrow A to arrow B. The arrow has moved squares up ? and ? squares to the left.	The arrow has moved six squares up and six squares to the left	BOTH must be correct for the award of ONE mark	1
94	The area of this square is 100cm². The square is split into five identical rectangles. What is the perimeter of one of the rectangles? Don't forget your units.	24cm		2
95	Tick all the acute angles.			1

Question Number	Question	Answer	Acceptable answer or additional guidance	Marks
96	Tallulah has drawn a rectangle.The length of the rectangle is double its height.The height of the rectangle is6cm.What is the area of Tullulah's rectangle? Don't forget your units.	Award TWO marks for the correct answer of 72cm². Award ONE mark for either: an answer of 72 or 72cm OR a complete method, with no more than one arithmetic error and the correct units, for example: 6 x 2 = 12 12 x 6 = wrong answer	Correct units must be given for the award of TWO marks.	2
97	Finlay is playing a big game of snakes and ladders.On his board, there are 13 squares in each row and 15 squares in each column. How many squares are there on the board altogether?	195		2
98	The area of a farmer's field is703m².The field is rectangular. The width of the field is 19m. What is the height of the field? Don't forget your units.	37m		2

Question Number	Question	Answer	Acceptable answer or additional guidance	Marks
99	Here is a set of squares around a shaded space What is the area of the shaded space?	11		1
100	A large rectangle is made up of five smaller rectangles. What is the perimeter of the large rectangle?	Award TWO marks for the correct answer of 54cm. Award ONE mark for either: 54 or 54m or 54cm². OR a full, feasible method with no more than one arithmetic error.	Correct units must be given for the award of TWO marks. For the award of ONE mark, the correct side lengths must be used, Do not accept: 15 x 5 = 75 75 x 2 = 150 150 x 3 x 3 = 156	2

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