National curriculum tests

Key stage 2

Mathematics

Paper 2: reasoning

First name	
Middle name	
Last name	
Date of birth	Day		Month		Year	
School name	

SAMPLE BOOKLET

Published July 2015

This sample test indicates how the national curriculum will be assessed from 2016. Further information is available on GOV.UK at **www.gov.uk/sta**.

PUPIL ID NUMBER

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S O O 0 6 0 A 0 2 2 4

Instructions

You **may not** use a calculator to answer any questions in this test.

Questions and answers

You have **40 minutes** to complete this test.

Follow the instructions for each question.

Work as quickly and as carefully as you can.

If you need to do working out, you can use the space around the question.
Do not write over any barcodes.

Some questions have a method box like this:
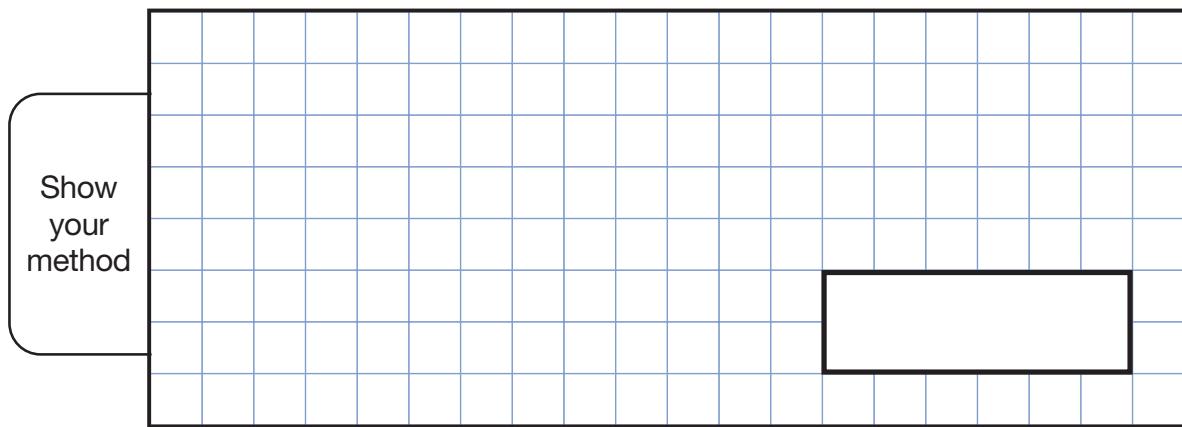
Show
your
method

For these questions you may get a mark for showing your method.

If you cannot do one of the questions, **go on to the next one**.
You can come back to it later, if you have time.

If you finish before the end, **go back and check your work**.

Marks

The number under each line at the side of the page tells you the maximum number of marks for each question.

1 Write the missing number.

One is done for you.

180 $\xrightarrow{\text{is 20 more than}}$ 160

$\boxed{}$ $\xrightarrow{\text{is 20 more than}}$ 237

1 mark

2

A pack of paper has 150 sheets.

4 children each take 7 sheets.

How many sheets of paper are left in the packet?

Show your method

2 marks

3   This graph shows the temperature in six cities on one day in January.
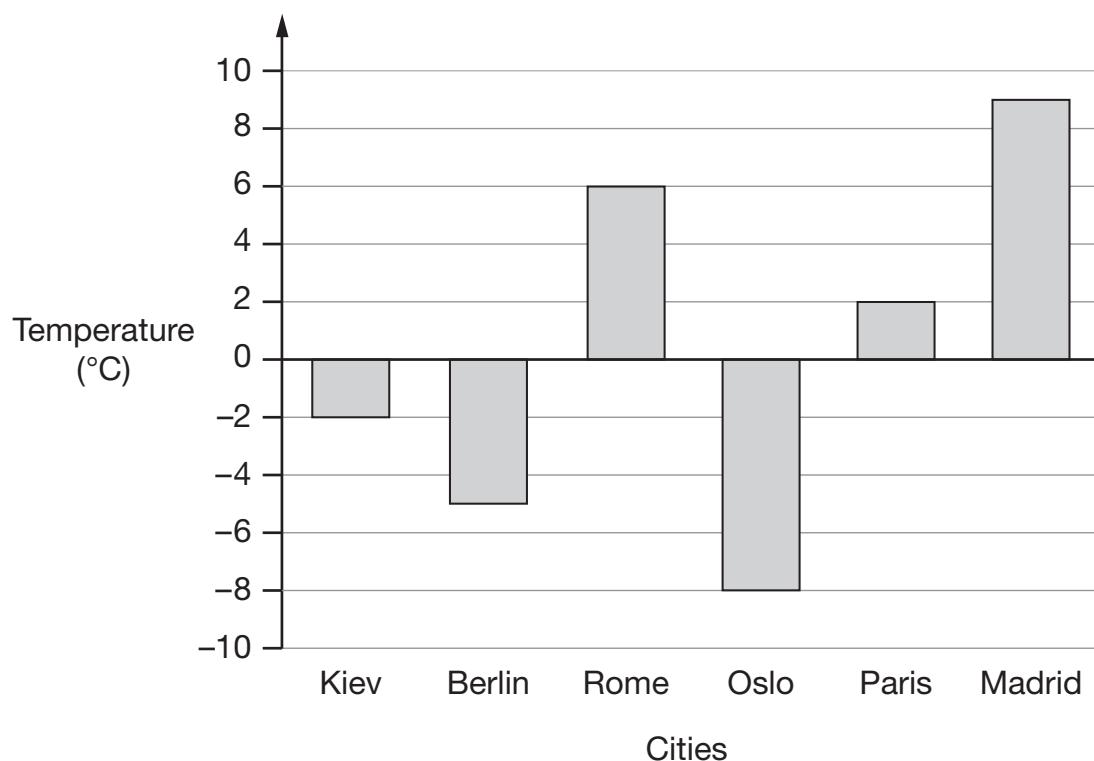
Which city was 4 degrees **warmer** than Kiev?

_____

1 mark

What was the **difference** between the temperature in Oslo
and the temperature in Berlin?

| °C |

1 mark

S 0 0 0 6 0 A 0 6 2 4

4 Here are some shapes made of squares.

A fraction of each shape is shaded.

Match each shape to its equivalent fraction.

One has been done for you.
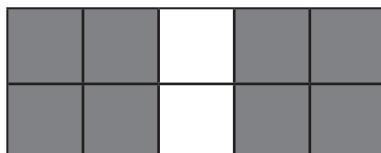
$\frac{7}{10}$
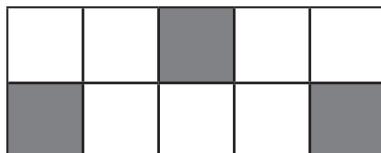
$\frac{3}{5}$
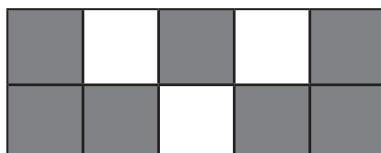
$\frac{1}{2}$
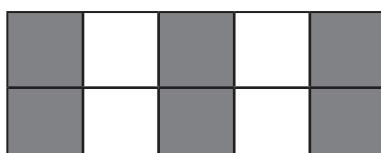
$\frac{4}{5}$
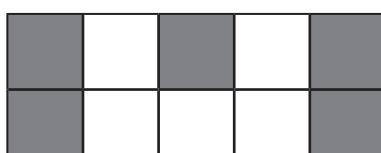
$\frac{3}{10}$

2 marks

5 What is 444 minutes in hours and minutes?

hours	minutes

1 mark

6 Stefan's watch shows five minutes past nine.

The watch is twelve minutes fast.

What is the correct time?

1 mark

S 0 0 0 6 0 A 0 8 2 4

7 In the circles, write a multiple that belongs to each set.

One has been done for you.

| numbers from 1 to 99 | —multiple of **10**— | (50) |

| numbers from 101 to 199 | —multiple of **20**— | ( ) |

| numbers from 201 to 299 | —multiple of **30**— | ( ) |

| numbers from 301 to 399 | —multiple of **40**— | ( ) |
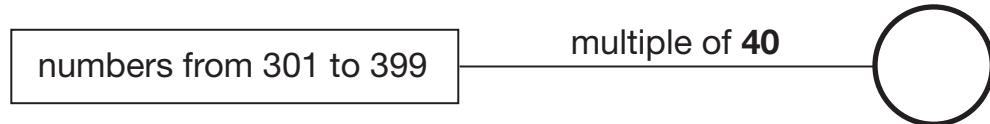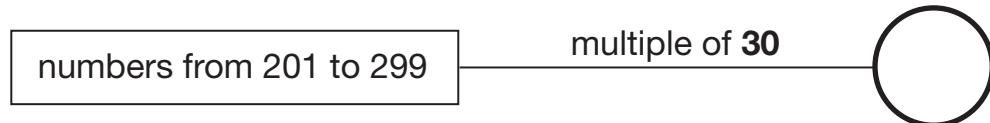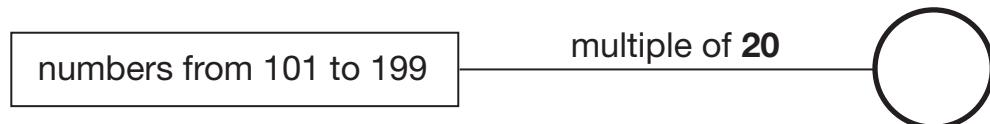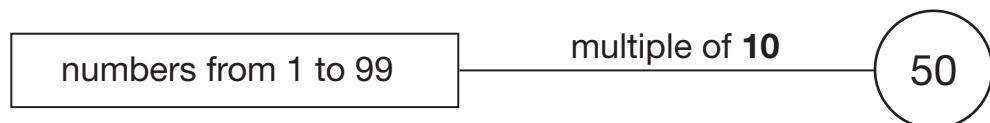
2 marks

8 Maria bakes cakes and sells them in bags.

She uses this formula to work out
how much to charge for one bag of cakes.

> **Cost = number of cakes × 20p + 15p for the bag**

How much will a bag of 12 cakes cost?

£ _____

1 mark

Olivia buys a bag of cakes for £5.15

Use the formula to calculate how many cakes are in the bag.

Show your method

_____ **cakes**

2 marks

S 0 0 0 6 0 A 1 0 2 4

9 Here is a triangle.
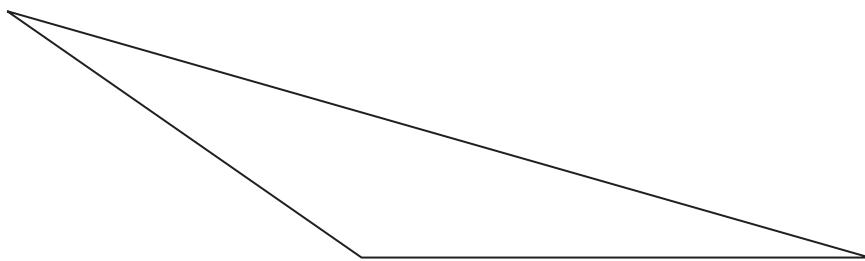
Measure the shortest side accurately, in centimetres.

cm

1 mark

Measure the largest angle.

°

1 mark

10 Write the two missing digits to make this **long multiplication** correct.

$$
\begin{array}{r}
4\ \boxed{} \\
\times\ \boxed{}\ 6 \\
\hline
2\ 4\ 6 \\
8\ 2\ 0 \\
\hline
1\ 0\ 6\ 6
\end{array}
$$

2 marks

S 0 0 0 6 0 A 1 2 2 4

11 Here is a number written in Roman numerals.

<div align="center">

CXV

</div>

Write the number in figures.

1 mark

**12** What number is halfway between 1.4 and 2.1?

1 mark

13 The diagram shows a shaded octagon on a square grid.

Line **A** joins two vertices of the octagon.

> Join two other vertices to draw a line **parallel** to line **A**.

Use a ruler.
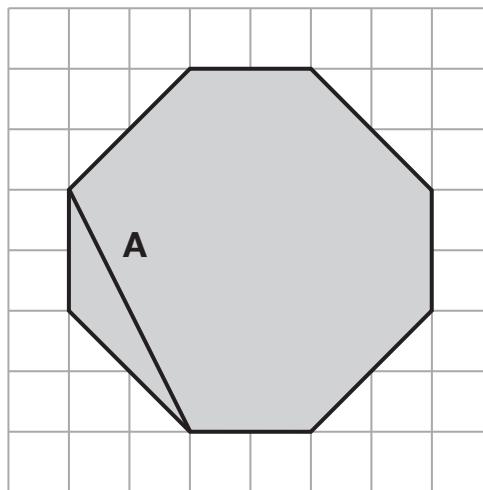
1 mark

> Join two vertices to draw a line **perpendicular** to line **A**.

Use a ruler.

1 mark

S 0 0 0 6 0 A 1 4 2 4
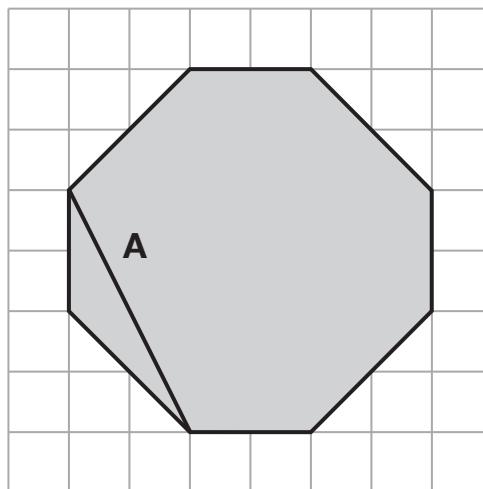
14 Round **124,531**

to the nearest 10,000

to the nearest 1,000

to the nearest 100

2 marks

15   A shaded **isosceles** triangle is drawn inside a rectangle.

a

38°

Not to scale
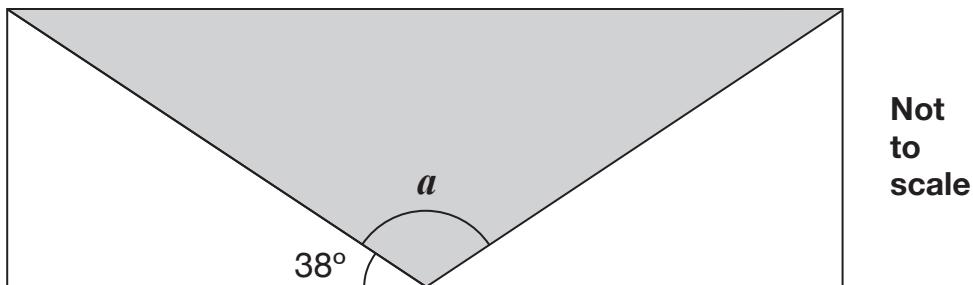
Calculate the size of angle a.

Show your method

a is [   ] °

2 marks

S 0 0 0 6 0 A 1 6 2 4

16 Large pizzas cost £8.50 each.

Small pizzas cost £6.75 each.

Five children together buy one large pizza and three small pizzas.

They share the cost equally.

How much does each child pay?

Show your method

£

2 marks

17 Seven children measured their heights.

Children	Height (cm)
Stefan	144
Lara	136
Olivia	142
Chen	143
Maria	152
Dev	148
Sarah	150

What is the mean height of the children?

Show your method

cm

2 marks

S 0 0 0 6 0 A 1 8 2 4

18 100 girls and 50 boys were asked which kind of chocolate they like best.

These two pie charts show the results.
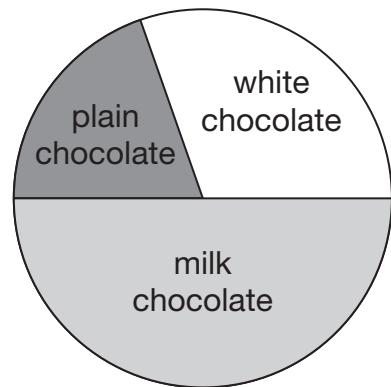
100 girls   **50 boys**

Dev says,

   "The pie charts show that more girls than boys liked milk chocolate best."

Dev is correct.

Explain how you know.

1 mark

19   **One gram** of gold costs £32.94

> What is the cost of **half a kilogram** of gold?

Show your method

£

2 marks

S 0 0 0 6 0 A 2 0 2 4

20   On Saturday Lara read $\frac{2}{5}$ of her book.
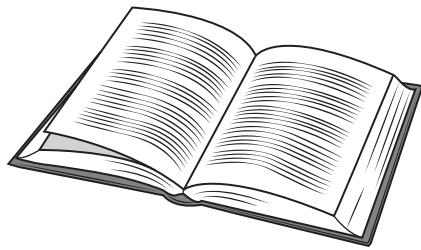
On Sunday she read the **other** 90 pages to finish the book.

How many pages are there in Lara's book?

Show your method

pages

2 marks

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Standards
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