

## National curriculum tests

# Key stage 2

## Mathematics

### Paper 2: reasoning



This link shows video solutions for the whole paper.

For solutions to individual questions, click on the link below the question number.

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](http://www.gov.uk/sta).



1

Write the missing number.



One is done for you.

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

$$\boxed{\phantom{000}} \xrightarrow{\text{is 20 more than}} 237$$

1 mark



2

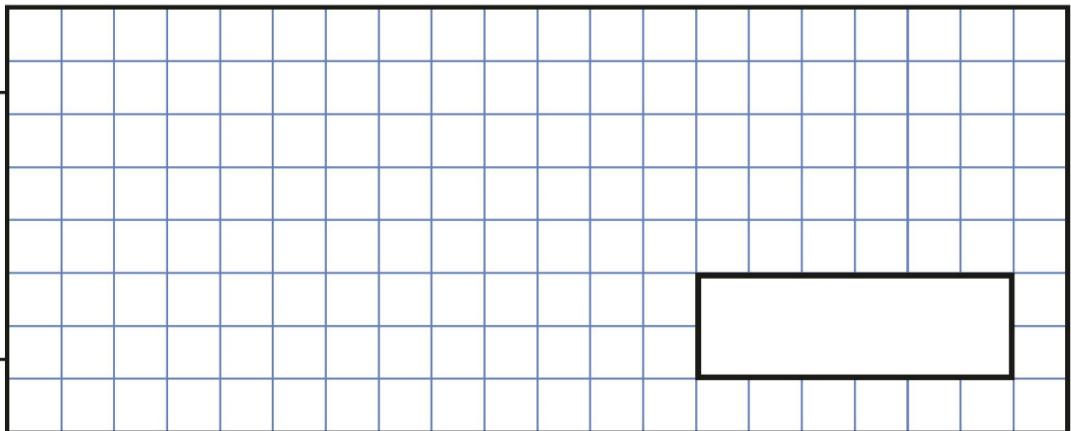
A pack of paper has 150 sheets.



4 children each take 7 sheets.

How many sheets of paper are left in the packet?

Show  
your  
method

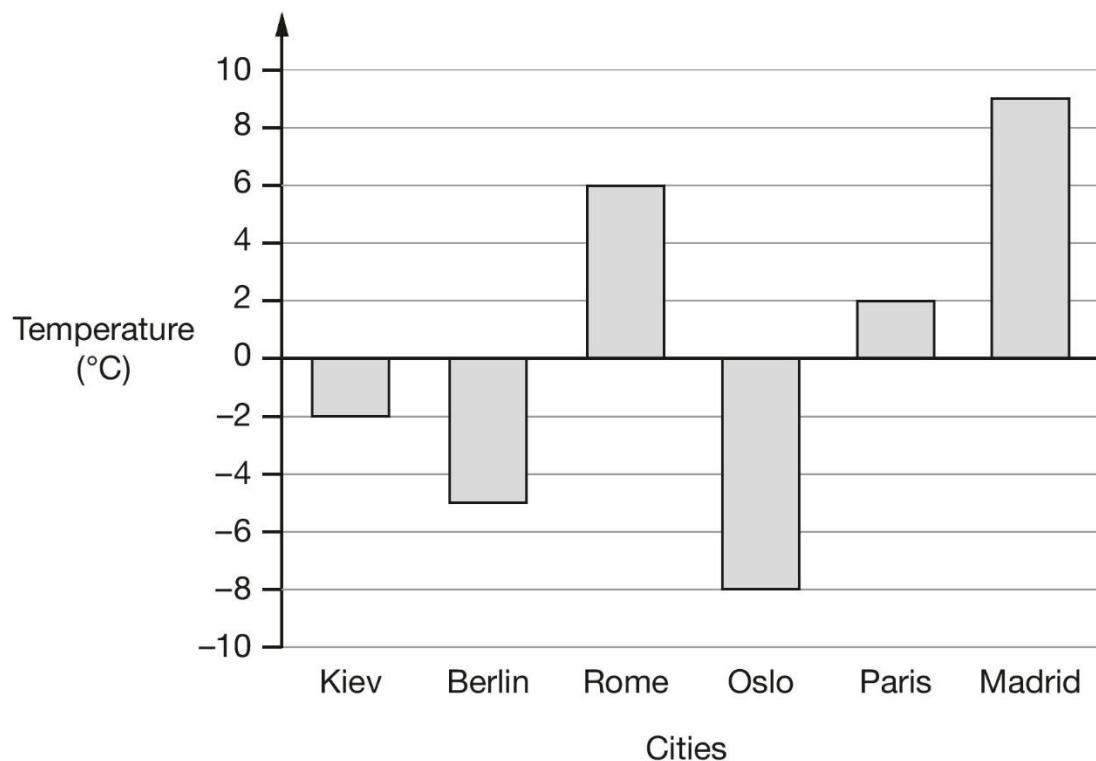


2 marks



3

This graph shows the temperature in six cities on one day in January.



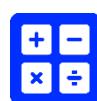
Which city was 4 degrees **warmer** than Kiev?

\_\_\_\_\_ 1 mark

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

 °C

\_\_\_\_\_ 1 mark



4

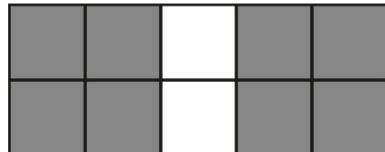
Here are some shapes made of squares.



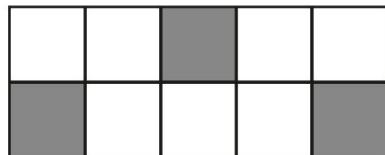
A fraction of each shape is shaded.

Match each shape to its equivalent fraction.

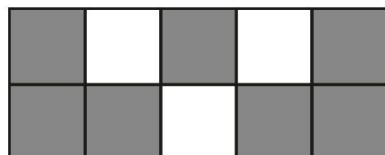
One has been done for you.



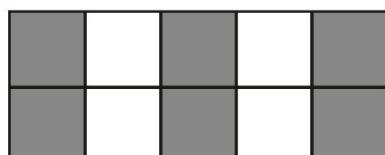
$$\frac{7}{10}$$



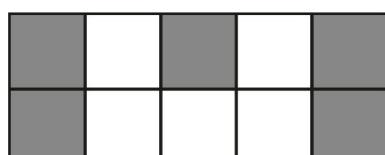
$$\frac{3}{5}$$



$$\frac{1}{2}$$



$$\frac{4}{5}$$



$$\frac{3}{10}$$

2 marks



5

What is 444 minutes in hours and minutes?



hours	minutes
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1 mark

6

Stefan's watch shows five minutes past nine.



The watch is twelve minutes fast.



What is the correct time?

1 mark

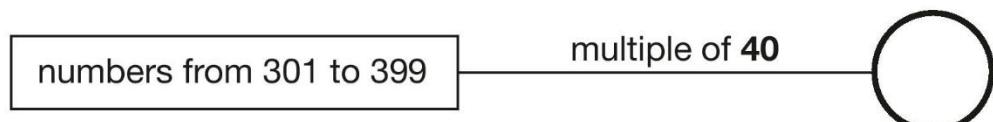
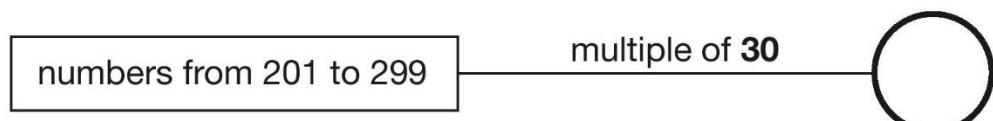
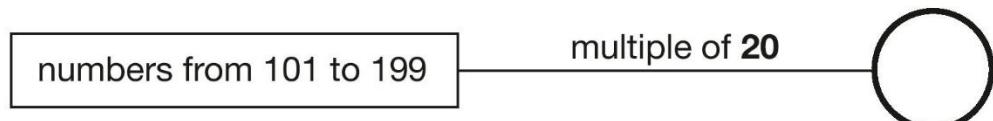
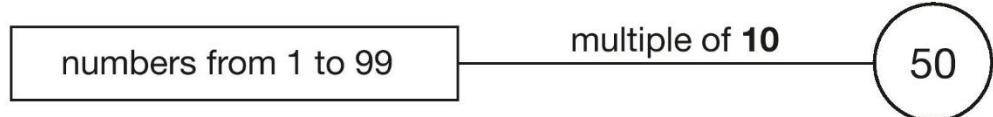


7

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



One has been done for you.



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  $\times$  20p + 15p for the bag**

How much will a bag of 12 cakes cost?

£

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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

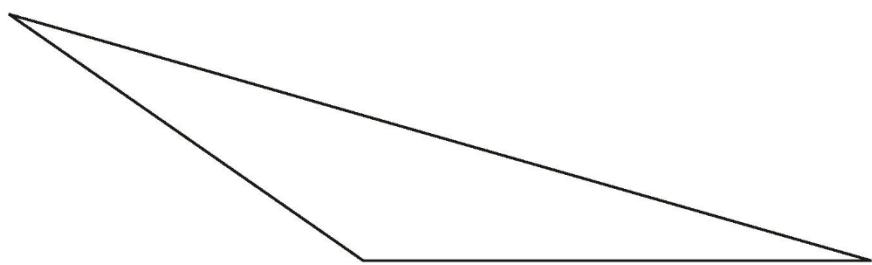
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2 marks



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.



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

2 marks



11

Here is a number written in Roman numerals.



CXV

Write the number in figures.

1 mark

12

What number is halfway between 1.4 and 2.1?



1 mark



13

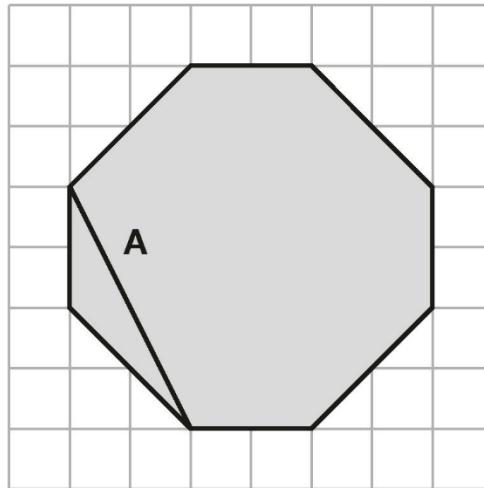
The diagram shows a shaded octagon on a square grid.



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

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

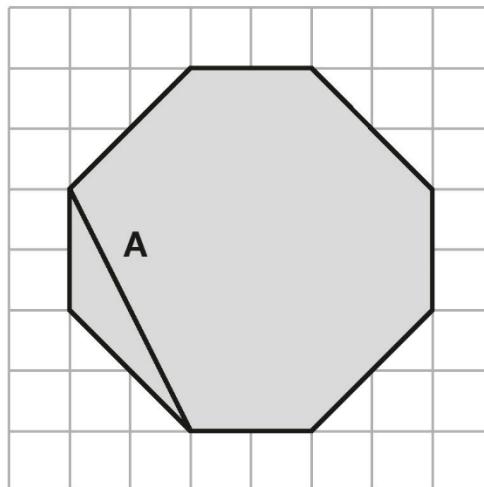
Use a ruler.



1 mark

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

Use a ruler.



1 mark



14

Round **124,531**



to the nearest 10,000

to the nearest 1,000

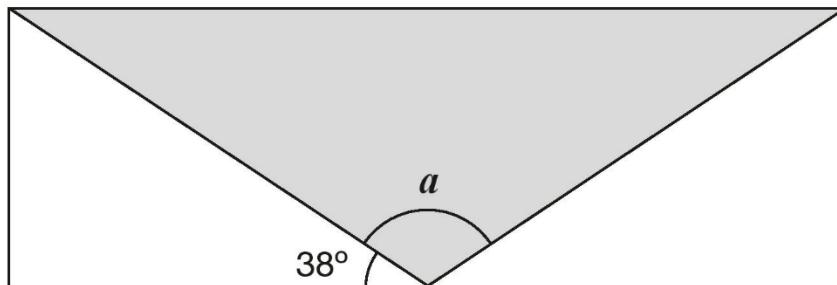
to the nearest 100

2 marks



15

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



Not  
to  
scale

Calculate the size of angle  $a$ .

Show  
your  
method

2 marks



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



18

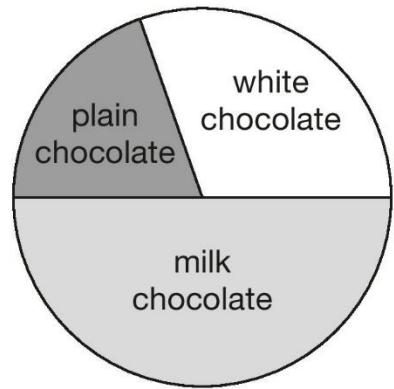
100 girls and 50 boys were asked which kind of chocolate they like best.



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

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2 marks

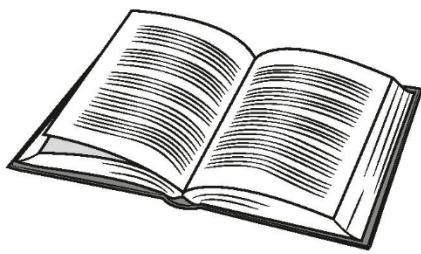


20

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