

2017 national curriculum tests

# Key stage 2

## Mathematics

### Paper 2: reasoning

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

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Please do not write on this page.

## Instructions

You **must 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 a question, **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

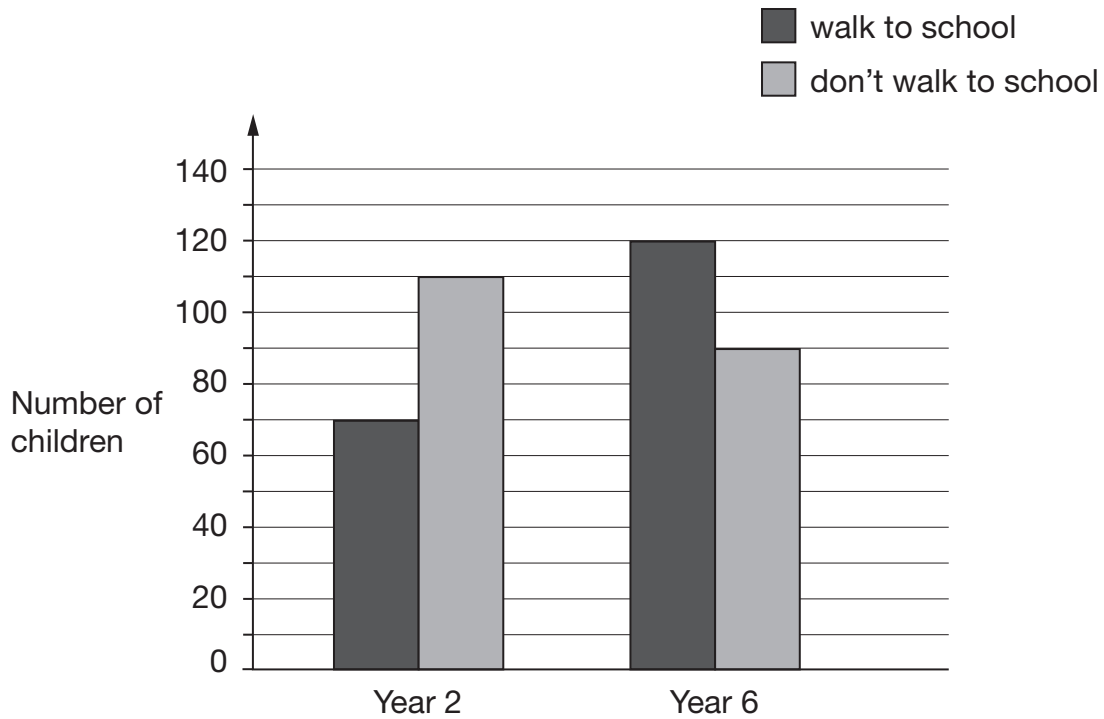
The number under each line at the side of the page tells you the maximum number of marks for each question.



1

William asks the children in Year 2 and Year 6 if they walk to school.

This graph shows the results.



Altogether, how many children **don't** walk to school?

1 mark

How many **more** Year 6 children than Year 2 children walk to school?

1 mark



2

Circle the number that is **10 times** greater than nine hundred and seven.

9,700

907

9,007

970

9,070

1 mark

3

Write the missing numbers to make this **multiplication** grid correct.

	×	<input type="text"/>	<input type="text"/>
<input type="text"/>	9	63	54
<input type="text"/>		56	48

1 mark



4

This table shows the heights of three mountains.

Mountain	Height in metres
Mount Everest	8,848
Mount Kilimanjaro	5,895
Ben Nevis	1,344

How much higher is Mount Everest than the combined height of the other two mountains?

Show  
your  
method

A large grid for showing the method. A small box on the right side of the grid contains the letter 'm'.

2 marks

5

Complete this table with the missing numbers.

One row has been done for you.

Number	1,000 more
3,500	4,500
85	
	9,099
	15,250

2 marks



6

Write these numbers in order of size, starting with the **smallest**.

1.9

0.96

1.253

0.328

**smallest**

1 mark

7

Write the missing numbers.

60 months =

years

72 hours =

days

84 days =

weeks

2 marks





8

At the start of June, there were 1,793 toy cars in the shop.

During June,

- 8,728 more toy cars were delivered
- 9,473 toy cars were sold.

How many toy cars were left in the shop at the end of June?

Show  
your  
method

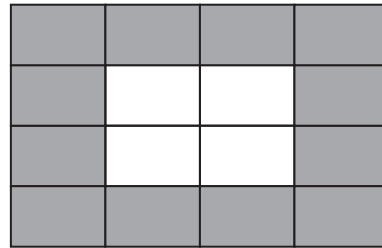
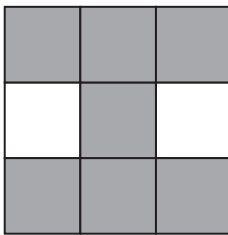
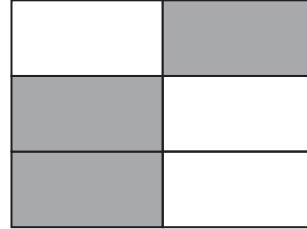
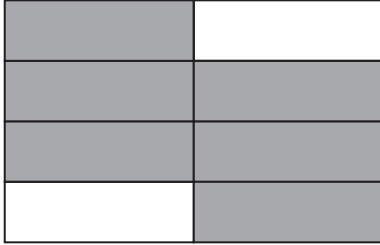
The grid is 20 units wide and 10 units high. A small rectangular box is drawn on the grid, spanning 4 units in width and 2 units in height, located in the lower right quadrant of the grid.

2 marks



9

Tick two shapes that have  $\frac{3}{4}$  shaded.



1 mark

10

Round 84,516

to the nearest 10

to the nearest 100

to the nearest 1,000

2 marks

11

Here is a rule for the time it takes to cook a chicken.

**Cooking time = 20 minutes plus an extra  
40 minutes for each kilogram**

How many minutes will it take to cook a 3 kg chicken?

minutes

1 mark

What is the mass of a chicken that takes 100 minutes to cook?

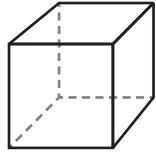
kg

1 mark

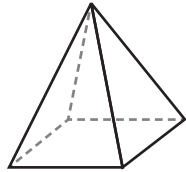
12

Here are diagrams of some 3-D shapes.

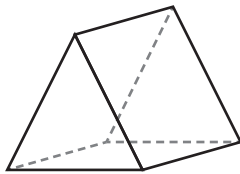
Tick each shape that has the same number of faces as vertices.



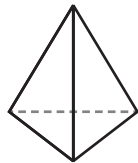
Cube



Square-based pyramid



Triangular prism



Triangular-based pyramid

2 marks





14

Amina planted some seeds.

For every 3 seeds Amina planted, only 2 seeds grew.

Altogether, 12 seeds grew.

How many seeds did Amina **plant**?

1 mark

15

At the end of a film, the year is given in Roman numerals.

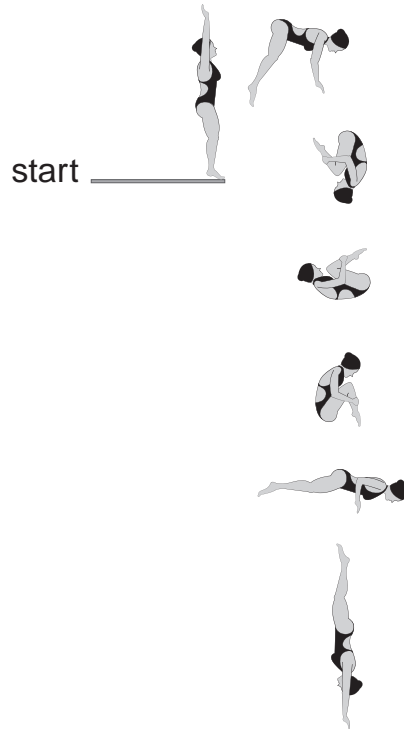


Write the year MMVI in **figures**.

1 mark

16

Layla completes one-and-a-half somersaults in a dive.



How many **degrees** does Layla turn through in her dive?

1 mark



17

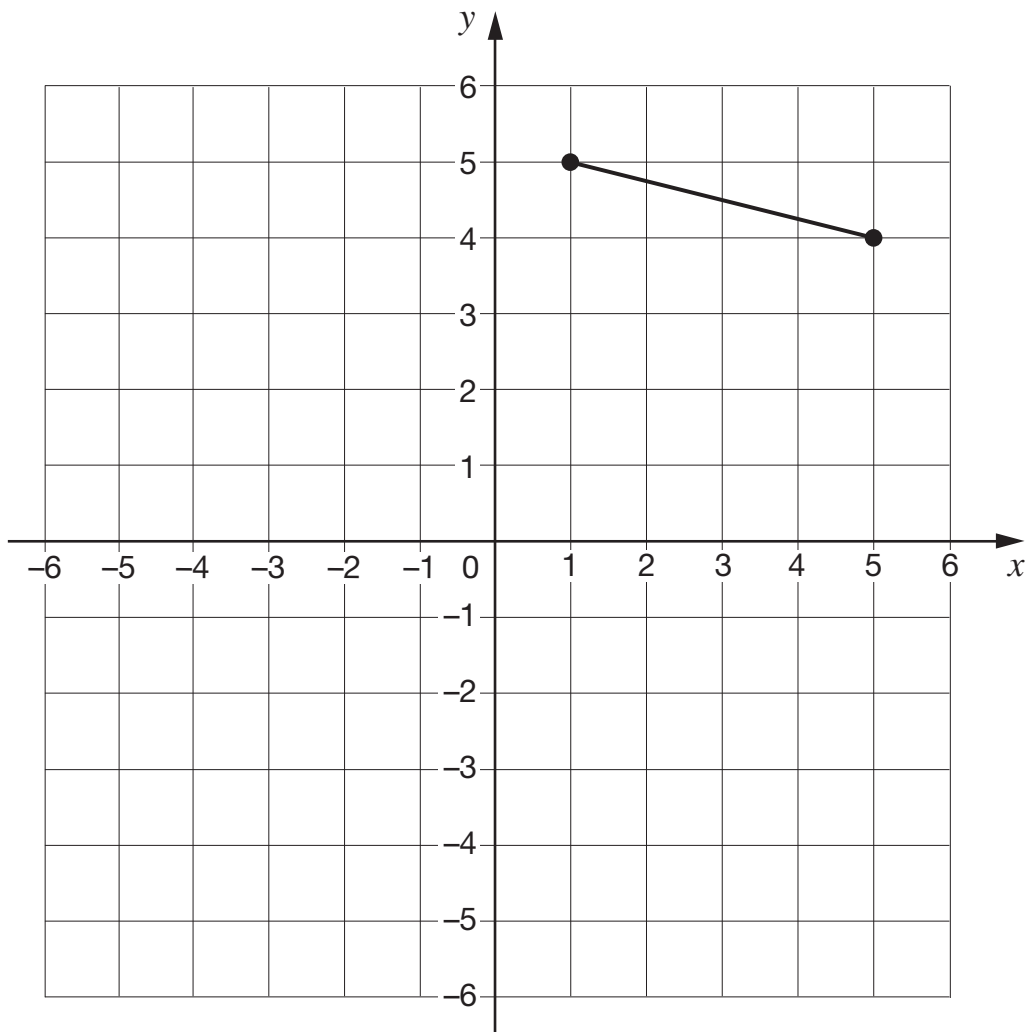
The vertices of a quadrilateral have these coordinates.

(1, 5)      (5, 4)      (1, -3)      (-3, 4)

One side of the quadrilateral has been drawn on the grid.

Complete the quadrilateral.

Use a ruler.



1 mark

18

A cat sleeps for **12 hours** each day.

**50%** of its life is spent asleep.



Write the missing percentage.

A koala sleeps for **18 hours** each day.

%

of its life is spent asleep.



1 mark

19

Amina posts three large letters.

The postage costs the same for each letter.

She pays with a £20 note.

Her change is £14.96

What is the cost of posting **one** letter?

Show  
your  
method

A large grid for showing the method of calculation. A small box on the right side of the grid contains the symbol '£'.

2 marks

20

Adam says,

0.25 is **smaller** than  $\frac{2}{5}$



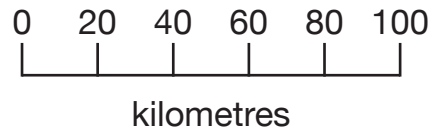
Explain why he is correct.

A large, empty, cloud-shaped box with a scalloped border, intended for the student to write their explanation.

1 mark

21

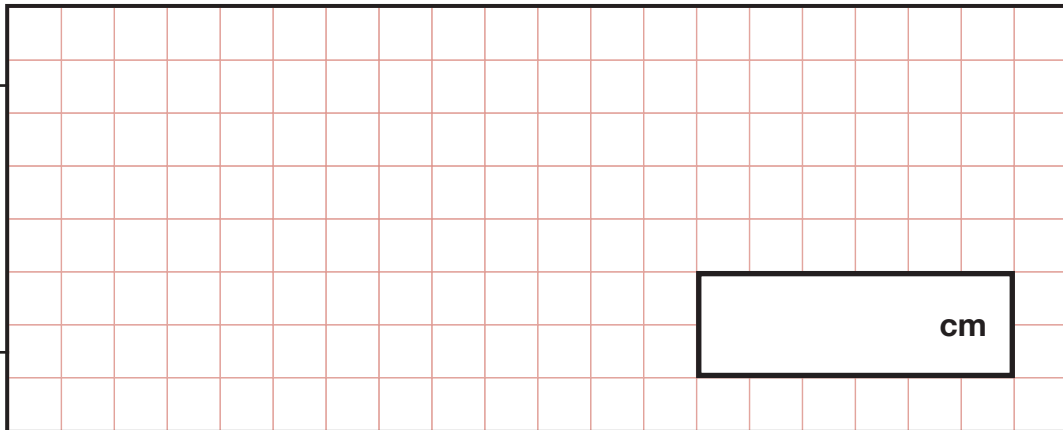
On a map, 1 cm represents 20 km.



The distance between two cities is **250 km**.

On the map, what is the distance between the two cities?

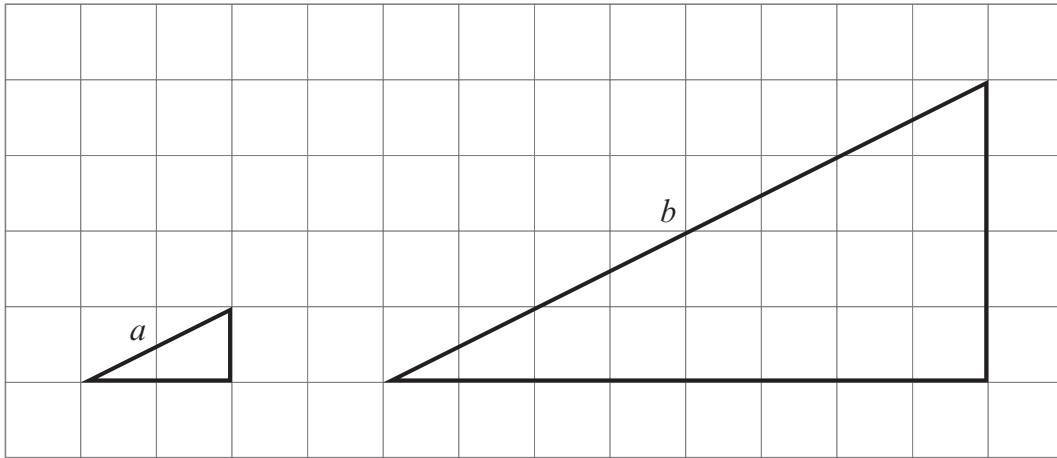
Show  
your  
method



2 marks

22

Here are two similar right-angled triangles.



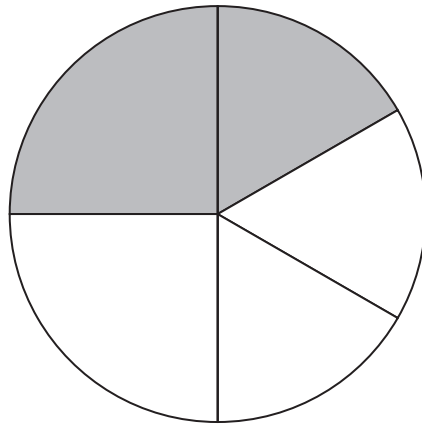
Write the ratio of side  $a$  to side  $b$ .

$$a:b = \boxed{\quad : \quad}$$

1 mark

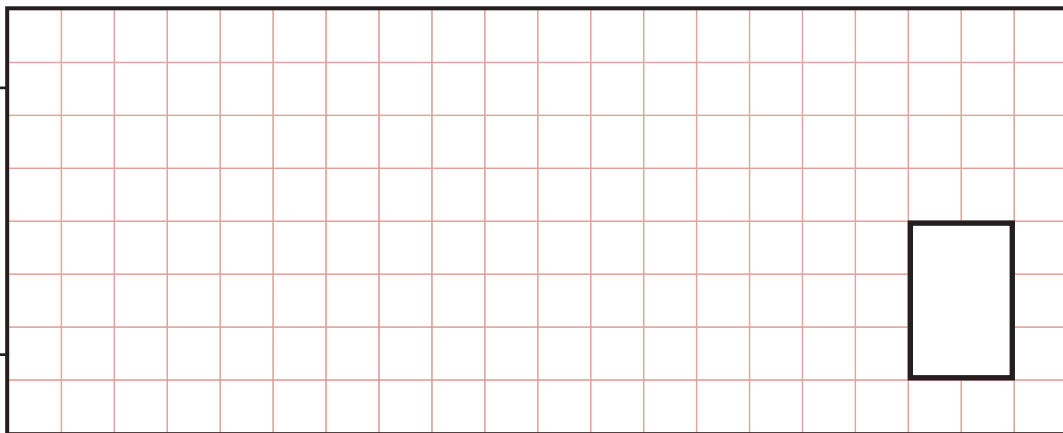
23

In this circle,  $\frac{1}{4}$  and  $\frac{1}{6}$  are shaded.



What fraction of the whole circle is **not** shaded?

Show  
your  
method



2 marks



2017 key stage 2 mathematics

Paper 2: reasoning

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