

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						

Completed paper. Mark the answers and explain what errors have been made.



[BLANK PAGE]

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.

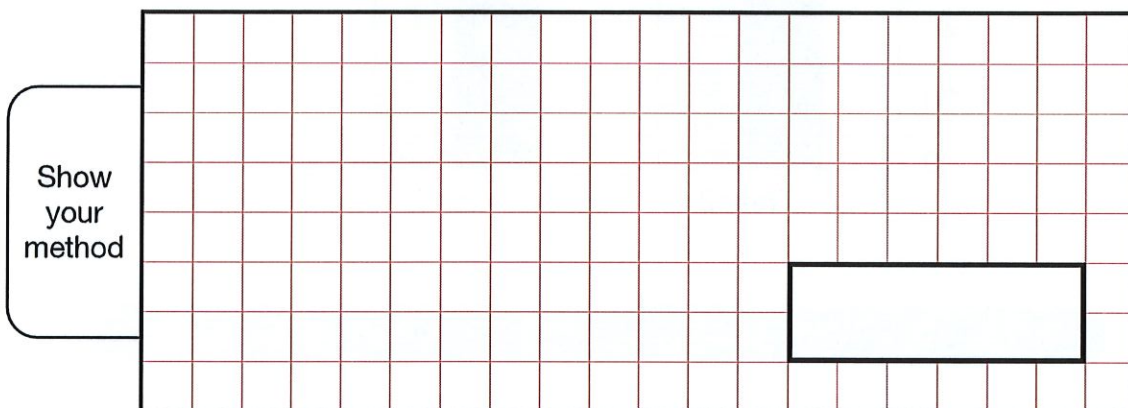
Follow the instructions for each question.

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:



The diagram shows a large rectangular grid with a rounded left side. Inside the grid on the left, there is a smaller rounded rectangle containing the text 'Show your method'. To the right of this area, there is a smaller, empty rectangular box, also with a black border, representing a space for showing working out.

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

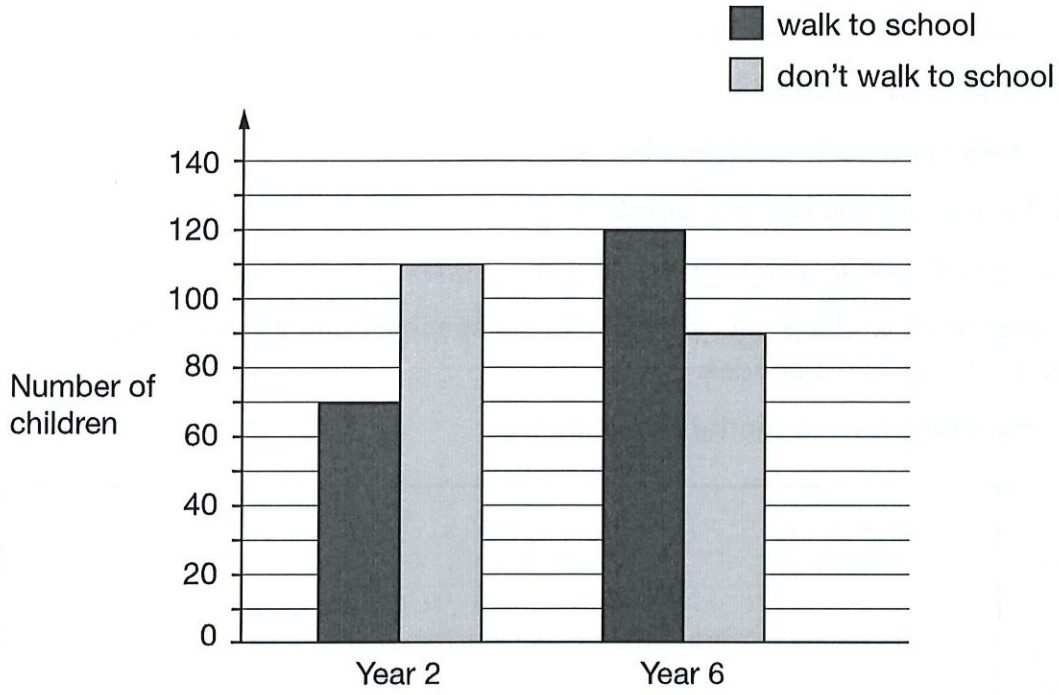
The number under each line at the side of the page tells you the maximum number of marks for each question.



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?

$$70 + 120 = 190$$

190

1 mark

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

$$120 - 70 = 50$$

50

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.

×	7	6
9	63	54
7	56	48

$$9 \times _ = 63$$

$$9 \times _ = 54$$

$$7 \times _ = 56$$

1 mark



5

Complete this table with the missing numbers.

One row has been done for you.

Number	1,000 more
3,500	4,500
85	185
10 099	9,099
5250	15,250

2 marks



6

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

1.9

0.96

1.253

0.328

1.9

0.96

0.328

1.253

smallest

1 mark

7

Write the missing numbers.

60 months =

6

years

12 months in
1 year

72 hours =

2.5

days

24 hours in one
day

84 days =

13

weeks

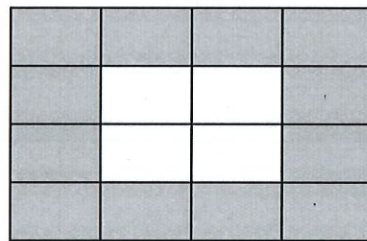
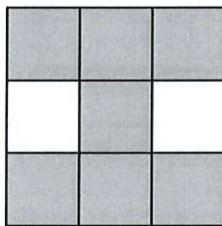
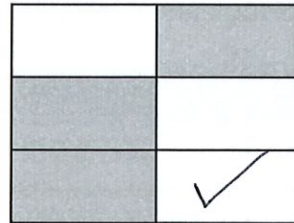
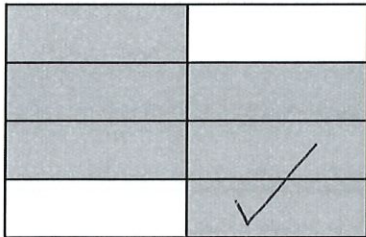
7 days in one
week

2 marks



9

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



1 mark



10

Round 84,516

to the nearest 10

84 510

to the nearest 100

84 520

to the nearest 1,000

85 516

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?

$$40 \times 3 = 120$$

120 minutes

1 mark

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

~~100 - 20 = 80~~

~~80 / 40 = 2~~

$$100 \div 40 = 2.5$$

$$40 + 40 + 20$$

2.5 kg

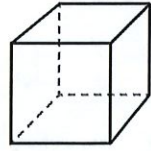
1 mark



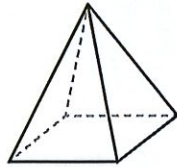
12

Here are diagrams of some 3-D shapes.

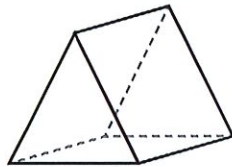
Tick each shape that has the same number of faces as vertices.



Cube



Square-based pyramid



Triangular prism



Triangular-based pyramid



2 marks



F 0 0 0 7 0 A 0 1 3 2 4

13

Ally and Jack buy some stickers.



**Pack of 12 stickers
£10.49**



**12 stickers
99p each**

Ally buys a pack of 12 stickers for £10.49

Jack buys 12 single stickers for 99p each.

How much more does Jack pay than Ally?

Show
your
method

		1	2	x	9	9	p	=	£	1	1	.	9	2								
		£	1	1	.	⁸ 9	'	2														
		-	£	1	0	.	4	9														
			£	0	1	.	4	3														

£ 1.43

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**?

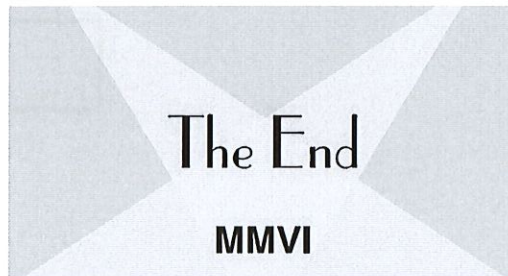
$$\begin{array}{l} \times 6 \quad (3 : \cancel{2}) \times 6 \\ \quad \quad \quad \downarrow \quad \quad \downarrow \\ \quad \quad \quad 18 : 12 \end{array}$$

18

1 mark

15

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



Write the year MMVI in **figures**.

1151

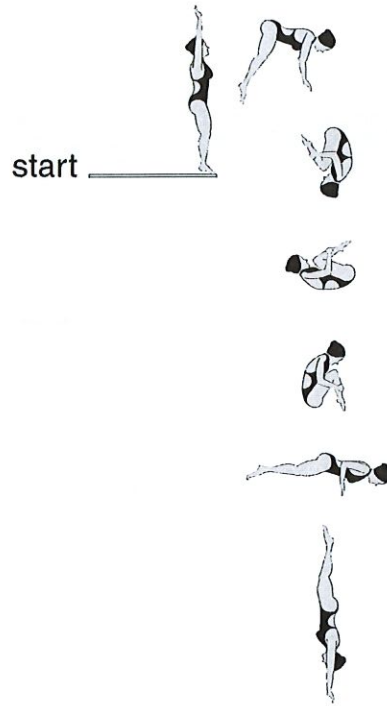
1 mark



F 0 0 0 7 0 A 0 1 5 2 4

16

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



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

180 °

1 mark



17

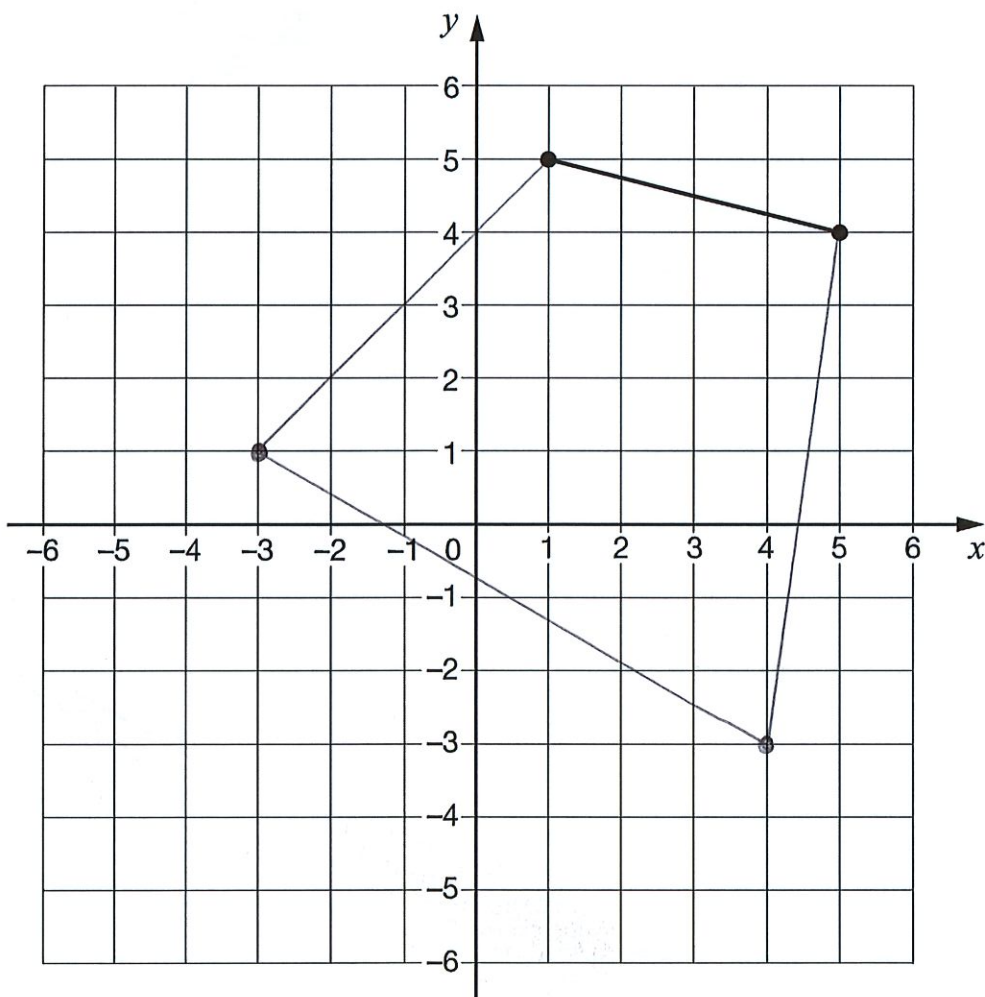
The vertices of a quadrilateral have these coordinates.

(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.

$\frac{18}{24}$	%
-----------------	---

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

$$\begin{array}{r} 20.00 \\ - 14.96 \\ \hline 05.04 \end{array}$$

£ 5.04

2 marks



Adam says,

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



Explain why he is correct.

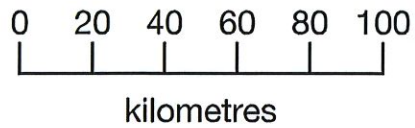
0.25 is $\frac{1}{4}$ and 1 and 4 are smaller than 2 and 5 so $\frac{1}{4}$ must be smaller.

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

$$250 \div 20 = 125$$

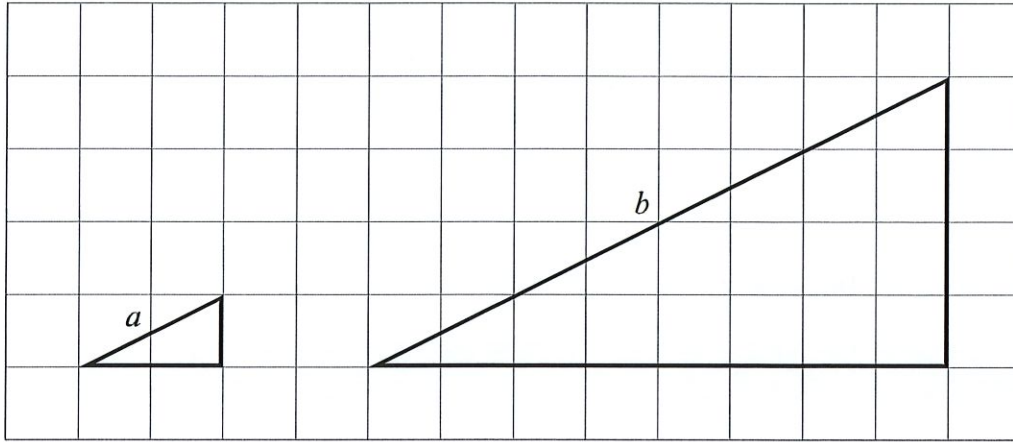
125 cm

2 marks



22

Here are two similar right-angled triangles.



Write the ratio of side a to side b .

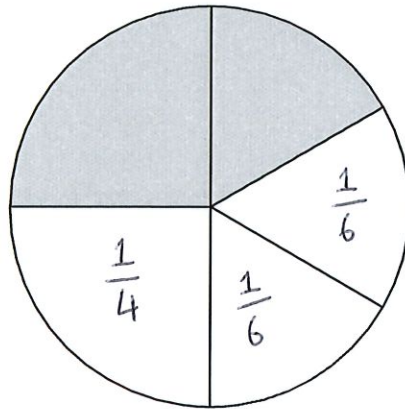
$$a:b = \boxed{1:8}$$

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

$$\frac{1}{4} + \frac{1}{6} + \frac{1}{6}$$

$$\frac{3}{12} + \frac{2}{12}$$

$$\frac{5}{12}$$

2 marks



F 0 0 0 7 0 A 0 2 3 2 4



Standards
& Testing
Agency

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F 0 0 0 7 0 A 0 2 4 2 4