

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

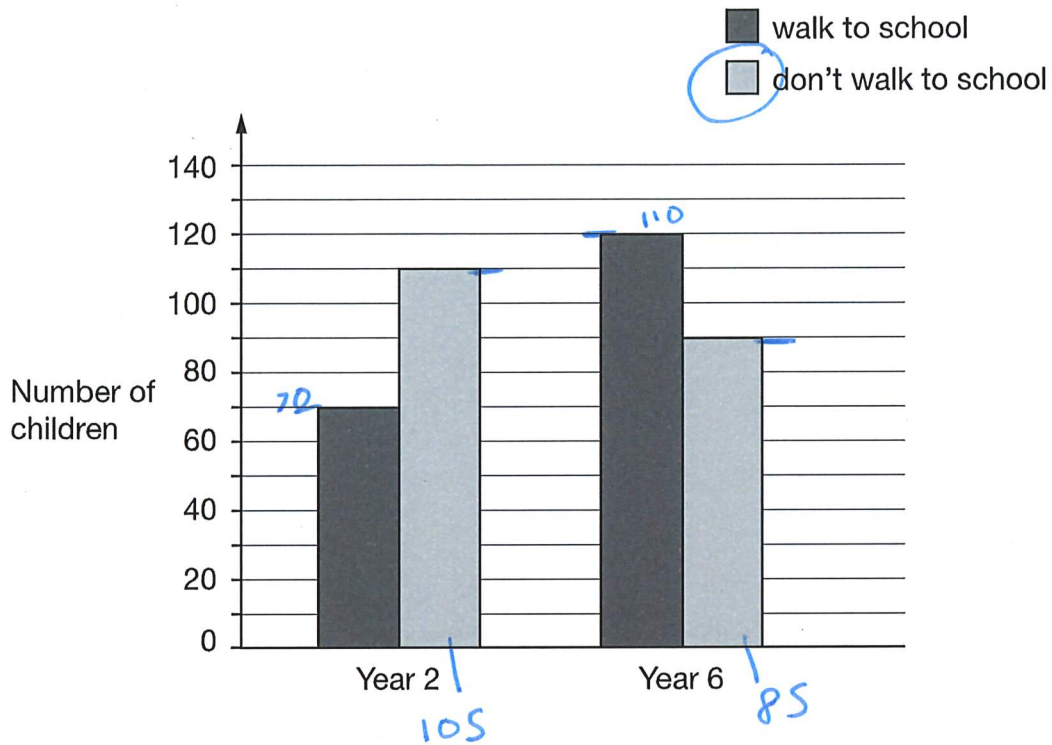
The number under each line at the side of the page tells you the maximum number of marks for each question.



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?

190

1 mark

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

$$\begin{array}{r}
 110 \\
 + 70 \\
 \hline
 180
 \end{array}$$

180

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

$$900 \times 10 = 9000$$

3

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

	×	7	6
9		63	54
8		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

5,895	+ 7,239	
1,344	8,848	
<u>7,239</u>	<u>16,087</u>	
'	'	
		16,087 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	1 850
7,099	9,099
16,250	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

1.253

0.328

smallest

1 mark

7

Write the missing numbers.

60 months = years

72 hours = days

84 days = weeks

$$\begin{array}{r} 24 \\ + 24 \\ + 24 \\ \hline 72 \\ 1 \end{array}$$

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

$\begin{array}{r} + 1793 \\ 8728 \\ \hline 10521 \\ \small{1 \quad 1 \quad 1} \end{array}$	$\begin{array}{r} - 10521 \\ 9473 \\ \hline 19152 \end{array}$
	$19,152$

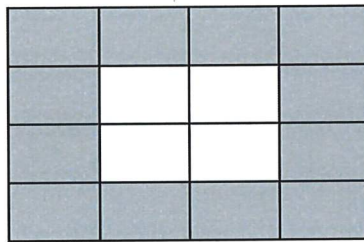
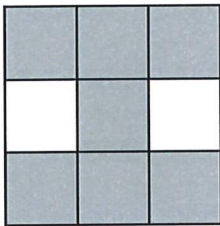
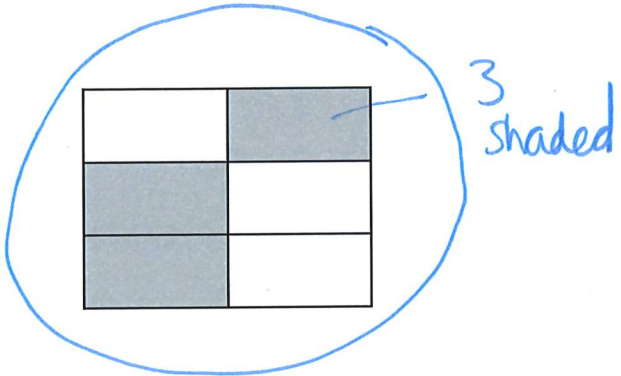
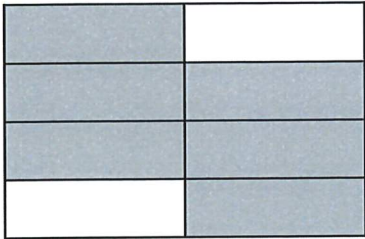
2 marks



F00070A0924

9

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



1 mark



10

Round 84,516

84,516

to the nearest 10

84,520

84,516

to the nearest 100

84,516

84,516

to the nearest 1,000

84,000

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?

$$40 \times 3 = 120$$

$$120 + 20 = 140$$

140 minutes

1 mark

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

$$100 - 20 = 80$$

$$80 \div 40 = 20$$

20 kg

1 mark



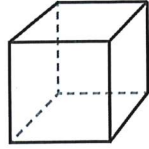


12

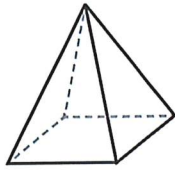
Here are diagrams of some 3-D shapes.

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

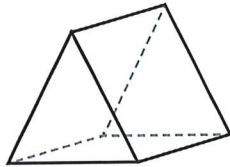
F	V
6	8
5	5
5	6
4	4



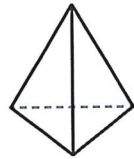
Cube



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

$ \begin{array}{r} 11.88 \\ -10.49 \\ \hline 0.39 \end{array} $	$ \begin{array}{r} \times 99 \\ 12 \\ \hline 998 \\ 990 \\ \hline 1188 \end{array} $	<p>£ 39</p>
--	--	-------------

2 marks



14

Amina planted some seeds.

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

Altogether, 12 seeds grew.

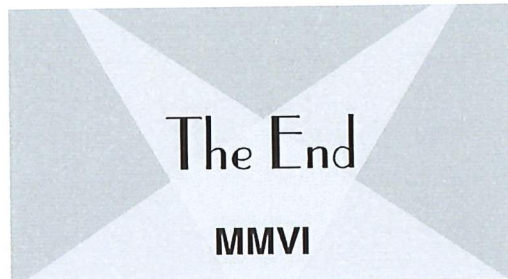
How many seeds did Amina **plant**?

12

1 mark

15

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



Write the year MMVI in **figures**.

2000 6

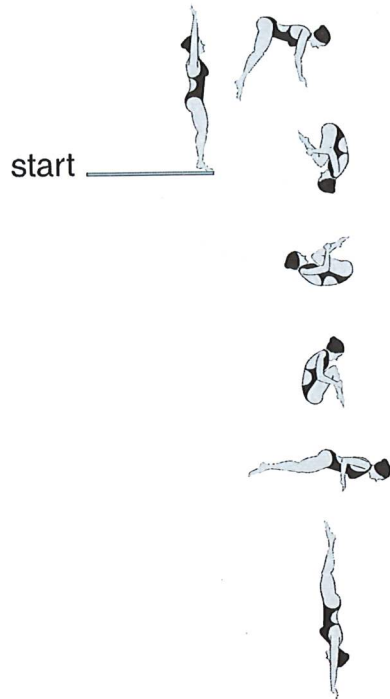
20006

1 mark



16

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



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

540°

1 mark



$$\begin{array}{r} 360 \\ 180 \\ \hline 540 \\ 1 \end{array}$$



17

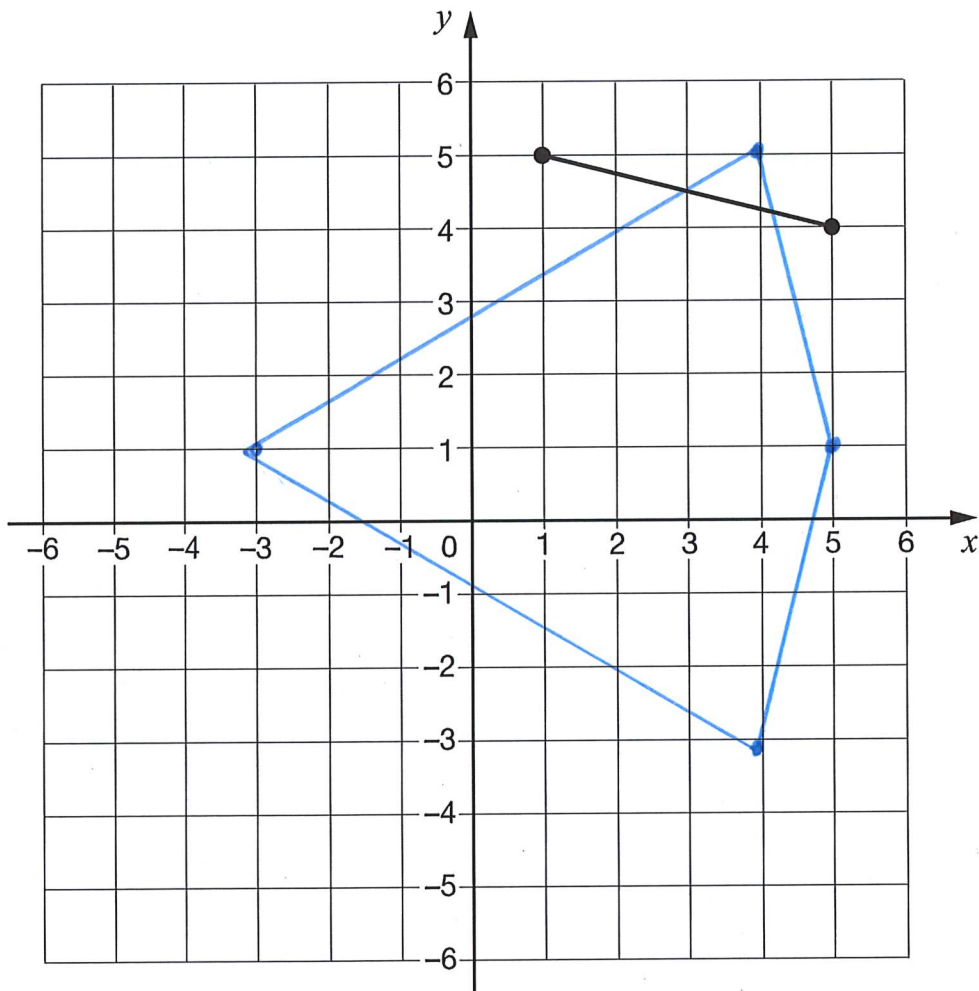
The vertices of a quadrilateral have these coordinates.

(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

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

$$\begin{array}{r} 1.66 \\ 3 \overline{) 5.04} \\ \underline{3} \\ 20 \\ \underline{18} \\ 22 \\ \underline{22} \\ 0 \end{array}$$

£ 1.66

2 marks



20

Adam says,

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



Explain why he is correct.

$$\frac{2}{5} = \frac{4}{10} = \frac{40}{100} = 0.4$$

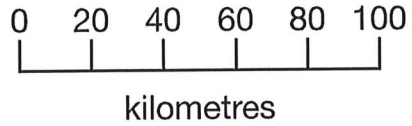
0.25 is less than 0.4

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

$$250 \div 20$$

$$250 \div 2 = 125$$

$$125 \div 10 = 12.5$$

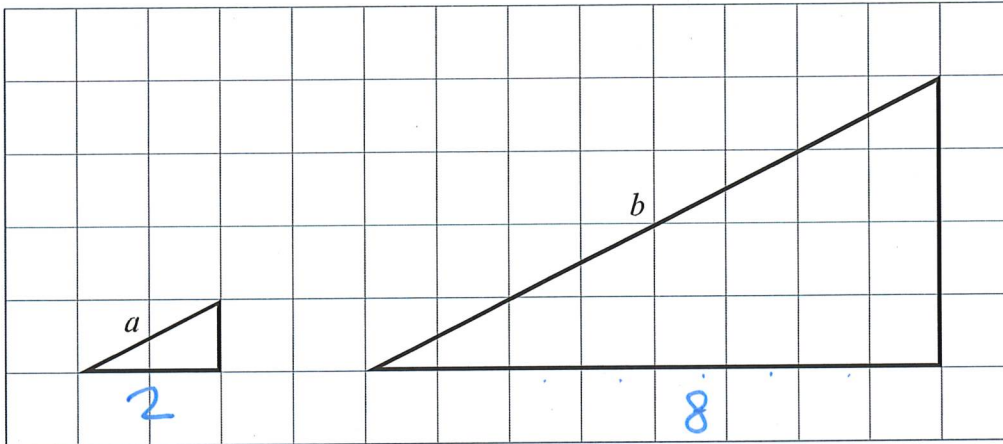
12.5 cm

2 marks



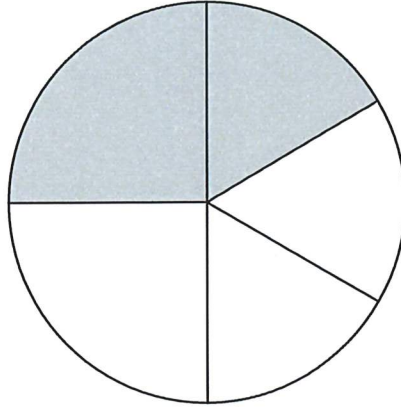
22

Here are two similar right-angled triangles.

Write the ratio of side a to side b . $a:b =$ $2 : 8$ 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

$$\frac{1}{4} + \frac{1}{6} = \frac{2}{10} \quad \frac{10}{10} - \frac{2}{10} = \frac{8}{10}$$

$$\frac{8}{10}$$

2 marks





2017 key stage 2 mathematics

Paper 2: reasoning

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