

SATs-style national curriculum tests

# Key Stage 2 (2018)

## Mathematics

### Paper 3: reasoning

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

Available from Mr A, Mr C and Mr D Present

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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 carefully as you can

If you need to do working out, you can use the space around the question.

Some questions have a method box like this:

A grid for showing working out. It consists of 10 columns and 10 rows. On the left side, there is a rounded rectangular box containing the text "Show your method". A horizontal line extends from the right side of this box across the grid. On the right side of the grid, there is a smaller rectangular box with a thick black border, representing a method box. This box is 4 columns wide and 2 rows high, starting from the 6th column and ending at the 10th column, and spanning the 4th and 5th rows.

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

If you cannot do a question, go to the next one.

You can come back to it later, if you have time.

### Marks

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

1

The numbers in this sequence increase by the same amount each time.

Write the missing numbers.

63 68  78

2 marks

2

Evie chooses colours for a new cartoon character she is drawing for a comic.

The character has two colours.



There are four colours to choose from: black, white, red and blue.

Write the **two** missing combinations.

The shirt could be:

- black and white
- red and blue
- white and red
- black and red

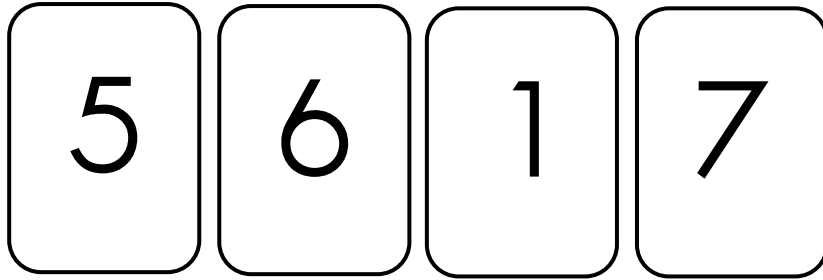
\_\_\_\_\_ and \_\_\_\_\_

\_\_\_\_\_ and \_\_\_\_\_

1 mark

3

Here are four number cards



Sally uses each card once to make a four-digit number.

She places:

- 1 so it has a higher value than any other number
- 7 in the tens column
- the remaining digits so 6 has the lowest value

Write down a digit in each box to show Sally's number.

--	--	--	--

1 mark

4

Write down the digits to make this addition correct.

$$\begin{array}{rcccccc} & \boxed{7} & \boxed{4} & \boxed{9} & \boxed{\phantom{0}} & \boxed{4} & \\ + & & \boxed{6} & \boxed{8} & \boxed{3} & \boxed{\phantom{0}} & \\ \hline \boxed{\phantom{0}} & \boxed{1} & \boxed{7} & \boxed{6} & \boxed{3} & & \end{array}$$

2 marks

5

Tick the numbers that are common factors of 16 and 24

2

8

4

10

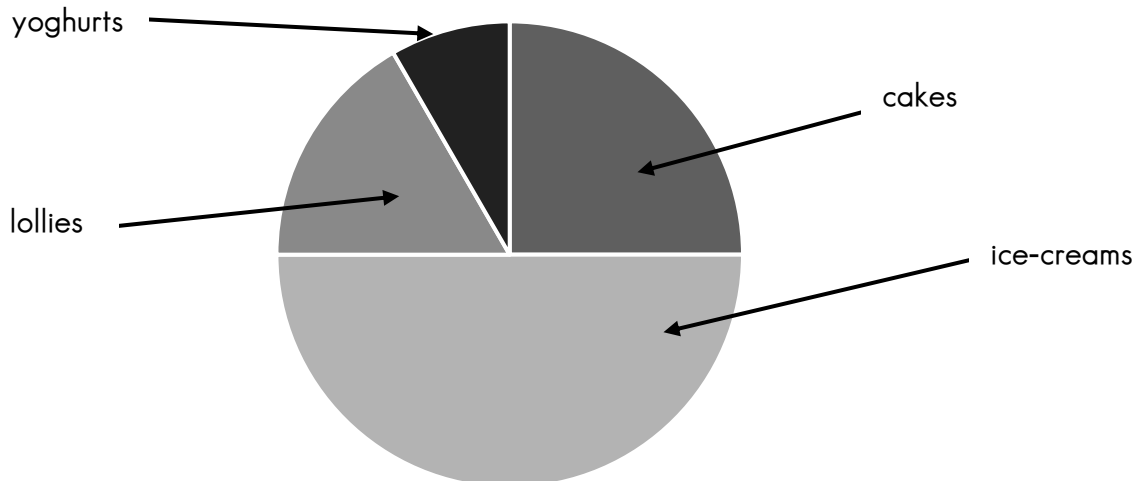
6

\_\_\_\_\_   
 2 marks

6

This chart shows the number of desserts available in a café.

There are 16 desserts altogether.



Here are some statements about the chart.

Tick the statements that are **false**.

The total number of cakes and yoghurts is 9

There are less cakes than lollies.

There are 8 different ice-creams available.

One quarter of the desserts are cakes.

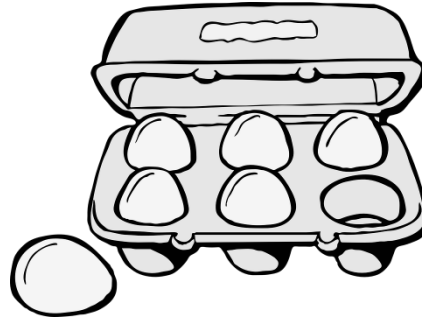
\_\_\_\_\_   
 2 marks

7

A farmer is packing eggs.

Each box holds six eggs.

the farmer has 830 eggs to pack.



How many boxes can the farmer fill using 830 eggs?

full boxes

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

How many eggs will be left over?

eggs

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

8

Jill has £300.

She spends 65% of her money on a virtual reality headset.



How much does Jill spend on her new headset?

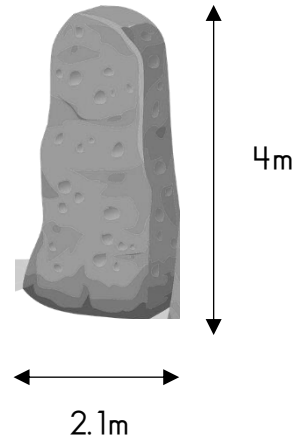
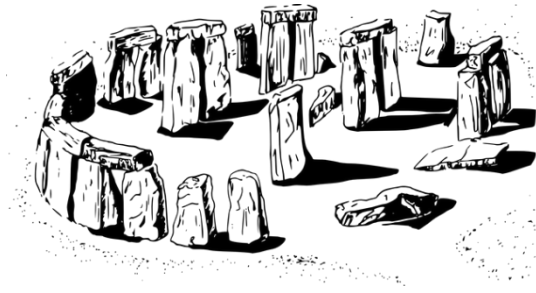
£

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

9

Stone Henge is an ancient stone circle in England.

Each stone is around 4m tall and 2.1m wide.



Gordon makes a scale model of Stone Henge.

Each stone he makes is 12cm tall.

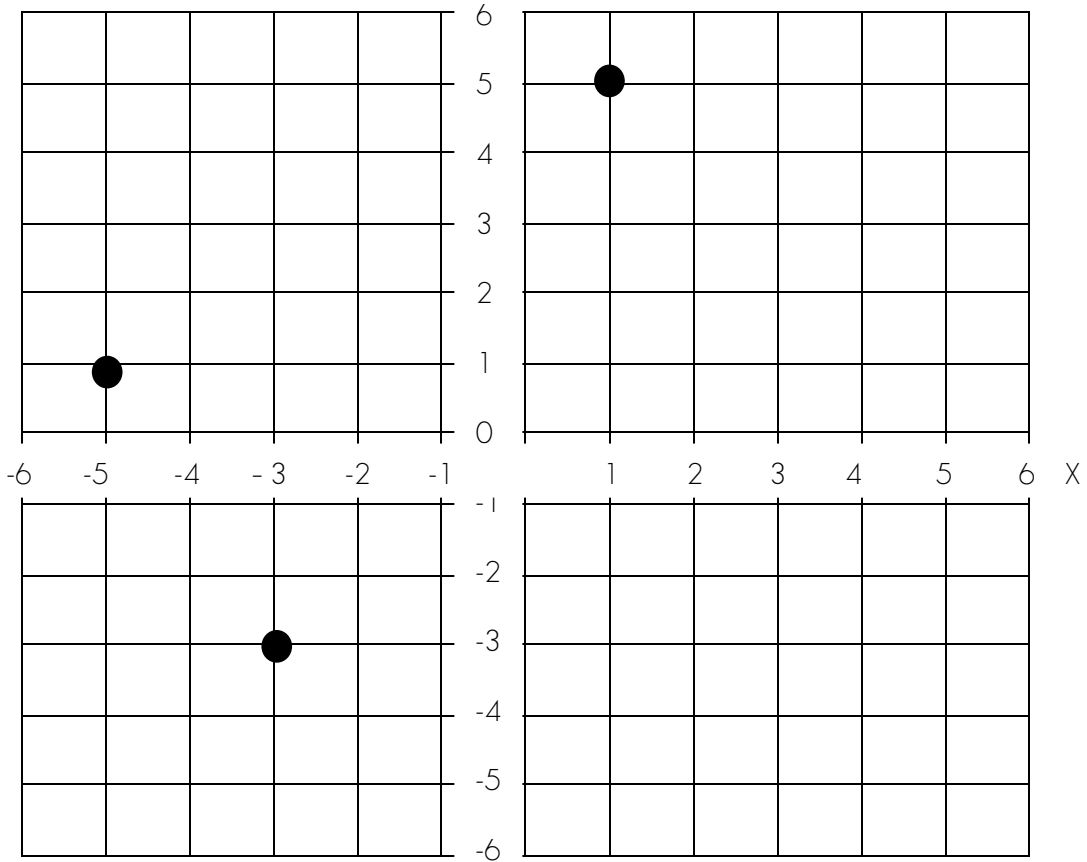
How **wide** is each one of his stone models?

10

Sally draws a rectangle on this coordinates grid.

Three of the vertices are marked. y

1 mark



What are the coordinates of the missing vertex?

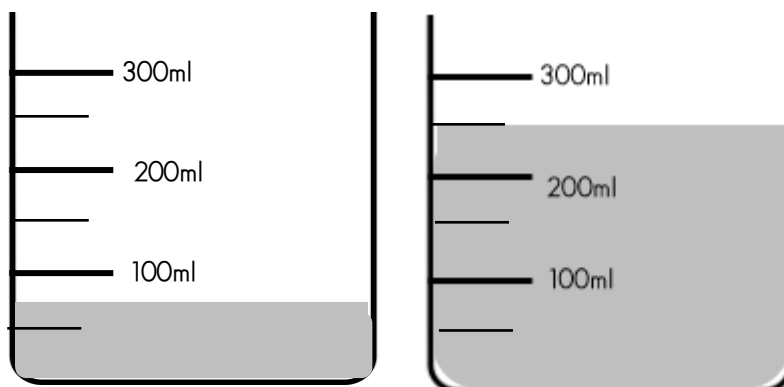
1 mark



11

Stephania has 800 millimetres in a bottle.

She pours some of the water into two measuring jugs as shown.



How many millilitres of water are left in Stephania's bottle?

Show  
your  
method


ml

2 marks

12

This table shows the areas of the Germany and Costa Rica.

Country	Area (Square Kilometres)
Germany	350,000
Costa Rica	50,000

How many times larger is the Germany than Costa Rica?

times larger

1 mark

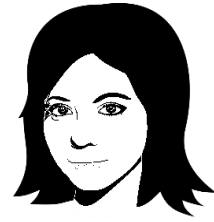


14

Two of the angles in a triangle are  $70^\circ$  and  $70^\circ$ .

Jill says,

The triangle is a scalene triangle.



Explain why Jill is **not** correct.

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

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

15

A shop prints designs onto cups.

They use this formula for working out the price for printing the design.



$$\text{price} = 35\text{p} \times \text{number of colours} + £1.15$$

What is the price for printing a design with **4** colours in it?

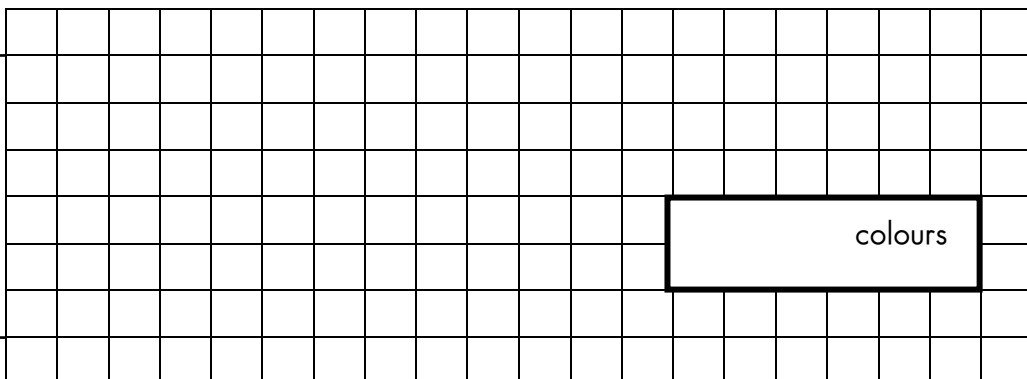
£

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

Noor has £6 to spend on printing a design.

What is the greatest number of **colours** she could have in her design?

Show  
your  
method



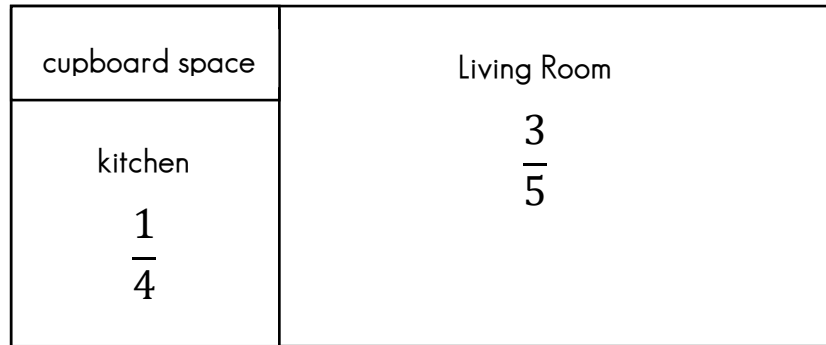
\_\_\_\_\_ 2 marks



18

This is a diagram of the downstairs of a house.

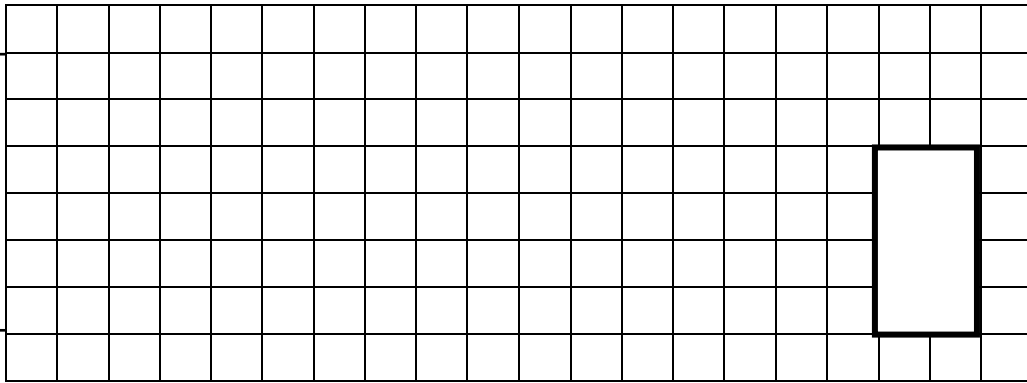
It shows what fractions of the downstairs floor are made up of different rooms.



The remaining area is cupboard space.

What **fraction** of the downstairs is cupboard space?

Show  
your  
method



2 marks

19

$$11,638 = 253 \times 46$$

Use this multiplication to complete the calculation below.

$$2530 \times 46$$

$$11,638 \div 46$$

$$253 \times 4.6$$

2 marks





*Mr A, Mr C and Mr D Present*

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Reasoning Paper 3 (2018)

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