

2016 national curriculum tests

Key stage 2

Mathematics

Paper 3: reasoning

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



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Instructions

You **may 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

The diagram shows a large rectangular grid of 20 columns and 10 rows of small squares. To the left of the grid is a rounded rectangular box containing the text 'Show your method'. To the right of the grid, in the bottom right corner, is a smaller rectangular box for the final answer.

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

The numbers in this sequence increase by 14 each time.

Write the missing numbers.

82

96

124

138

2 marks



2

This table shows the temperature at 9am on three days in January.

1st January	8th January	15th January
+ 5°C	– 4°C	+ 1°C

What is the difference between the temperature on 1st January and the temperature on 8th January?

1 mark

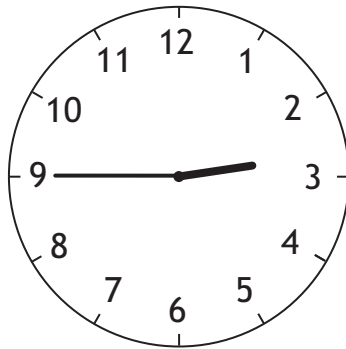
On 22nd January the temperature was 7 degrees lower than on 15th January.

What was the temperature on 22nd January?

1 mark

3

A clock shows this time twice a day.



Tick the two digital clocks that show this time.

03:45

02:45

09:45

21:45

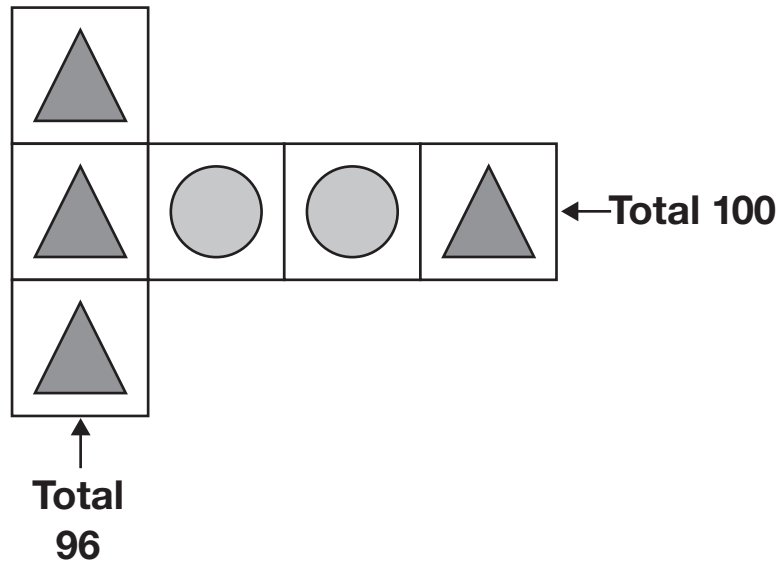
14:45

1 mark




4

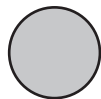
Each shape stands for a number.



Work out the **value** of each shape.

 = _____

1 mark

 = _____

1 mark



E 0 0 0 8 0 A 0 7 2 4

5

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

0.78

0.607

5.6

0.098

4.003

smallest

1 mark



6

Jacob cuts **4** metres of ribbon into **three** pieces.

The length of the first piece is **1.28** metres.

The length of the second piece is **1.65** metres.

Work out the length of the third piece.

Show
your
method

metres

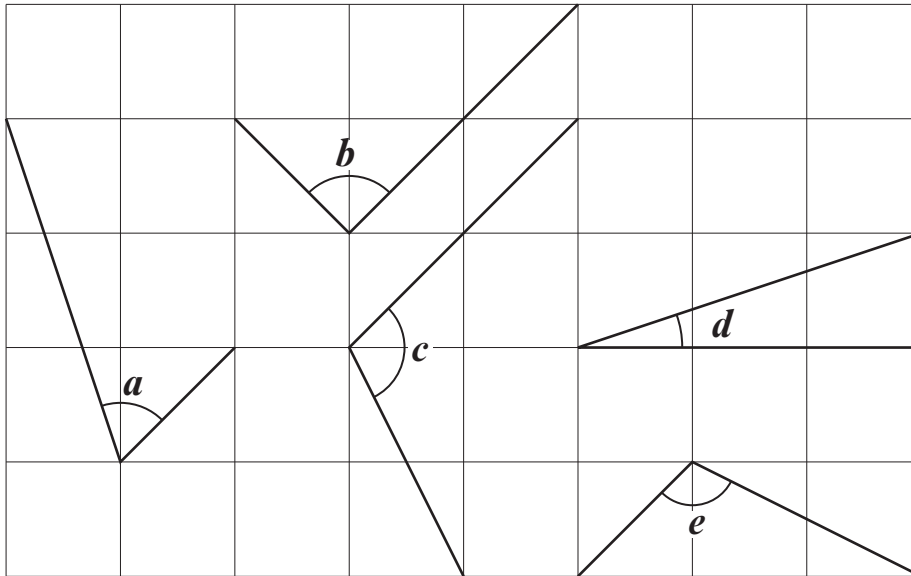
2 marks



E 0 0 0 8 0 A 0 9 2 4

7

Here are five angles marked on a grid of squares.



Write the letters of the angles that are **obtuse**.

1 mark

Write the letters of the angles that are **acute**.

1 mark



9

Here is part of the bus timetable from Riverdale to Mott Haven.

Riverdale	10:02	10:12	10:31	10:48
Kingsbridge	10:11	10:21	10:38	10:55
Fordham	10:28	10:38	10:54	11:11
Tremont	10:36	10:44	11:00	11:17
Mott Haven	10:53	11:01	11:17	11:34

How many minutes does it take the 10:31 bus from Riverdale to reach Mott Haven?

minutes

1 mark

Mr Evans is at Fordham at 10:30

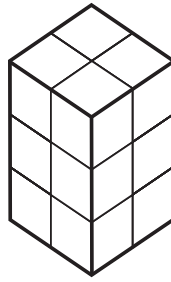
What is the **earliest** time he can reach Tremont on the bus?

1 mark

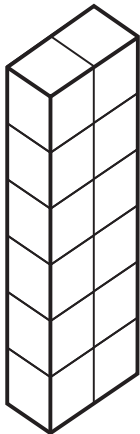


10

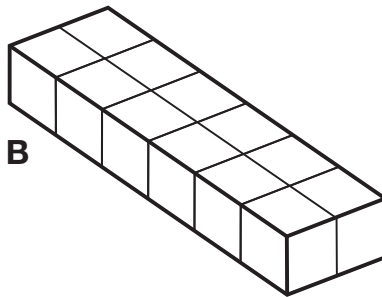
Emma makes a cuboid using 12 cubes.



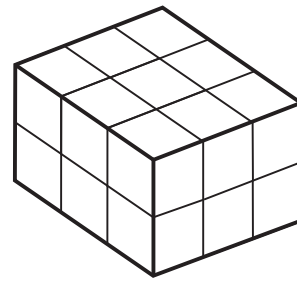
Write the letter of the cuboid that has a **different** volume from Emma's cuboid.



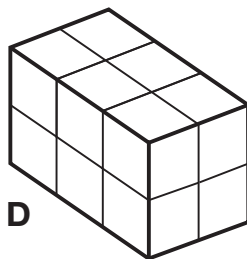
A



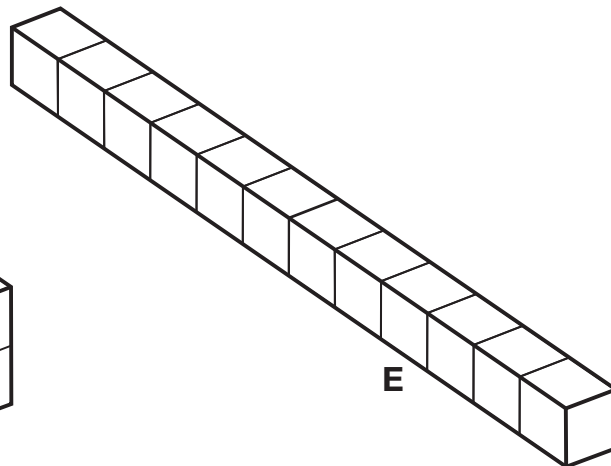
B



C



D

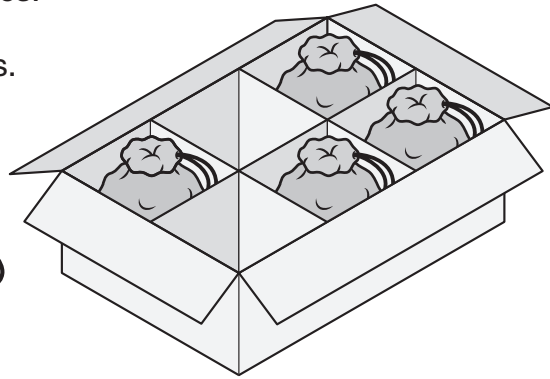


E

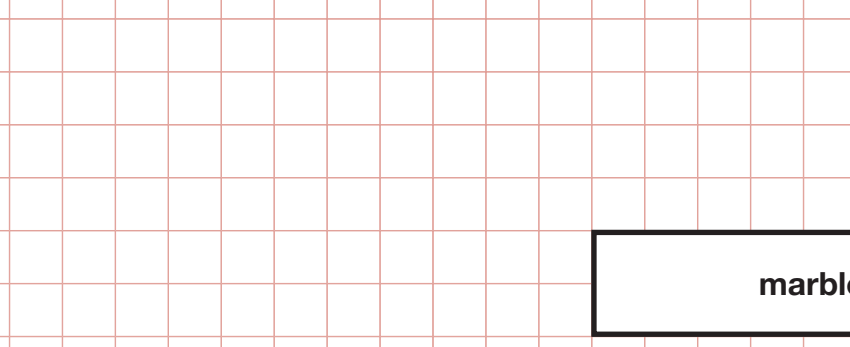
1 mark



Each bag contains 45 marbles.



Show
your
method



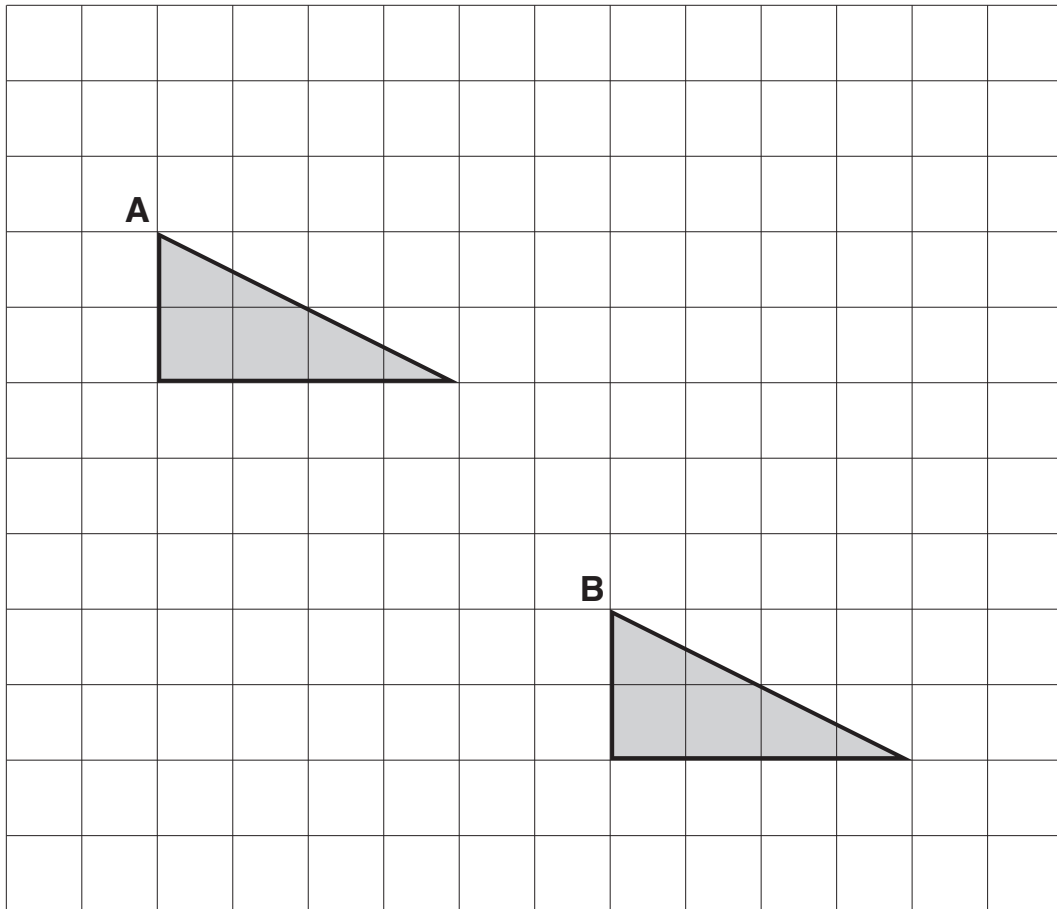
A 20x10 grid with a label 'marbles' in the bottom right corner.

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12

A triangle is translated from position **A** to position **B**.



Complete the sentence.

The triangle has moved

squares to the right

and

squares down.

1 mark



E 0 0 0 8 0 A 0 1 5 2 4

13

Lara chooses a number less than 20

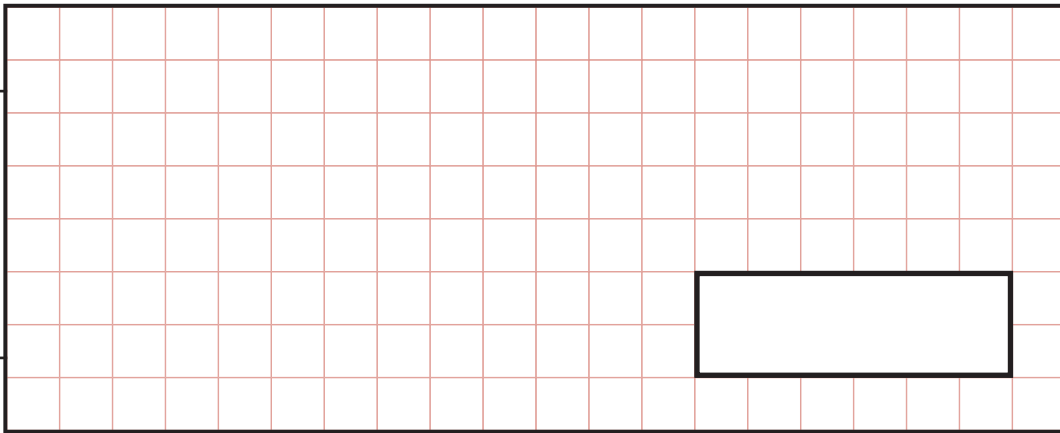
She divides it by 2 and then adds 6

She then divides this result by 3

Her answer is 4.5

What was the number she started with?

Show
your
method

A large grid for showing the method, with a smaller box on the right side.

2 marks



14

Complete each sentence using a number **from the list below**.

120 240 600 1,440 3,600 6,000

There are seconds in an hour.

1 mark

There are minutes in a day.

1 mark

15

Complete this table by rounding the numbers to the **nearest hundred**.

	Rounded to the nearest hundred
20,906	
2,090.6	
209.06	

2 marks

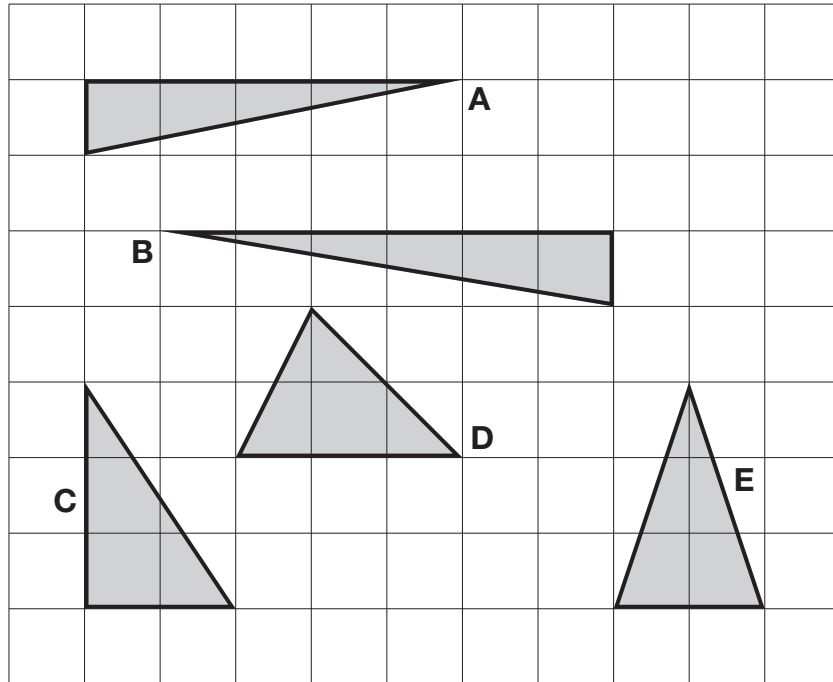


E 0 0 0 8 0 A 0 1 7 2 4



17

Here are five triangles on a square grid.



Four of the triangles have the same area.

Which triangle has a **different** area?

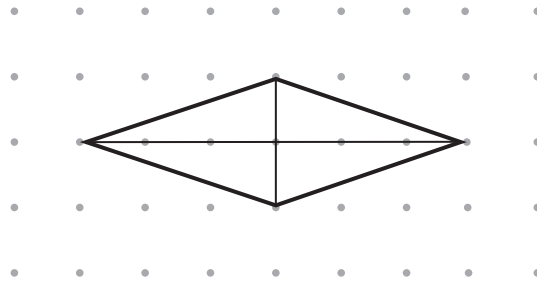
1 mark



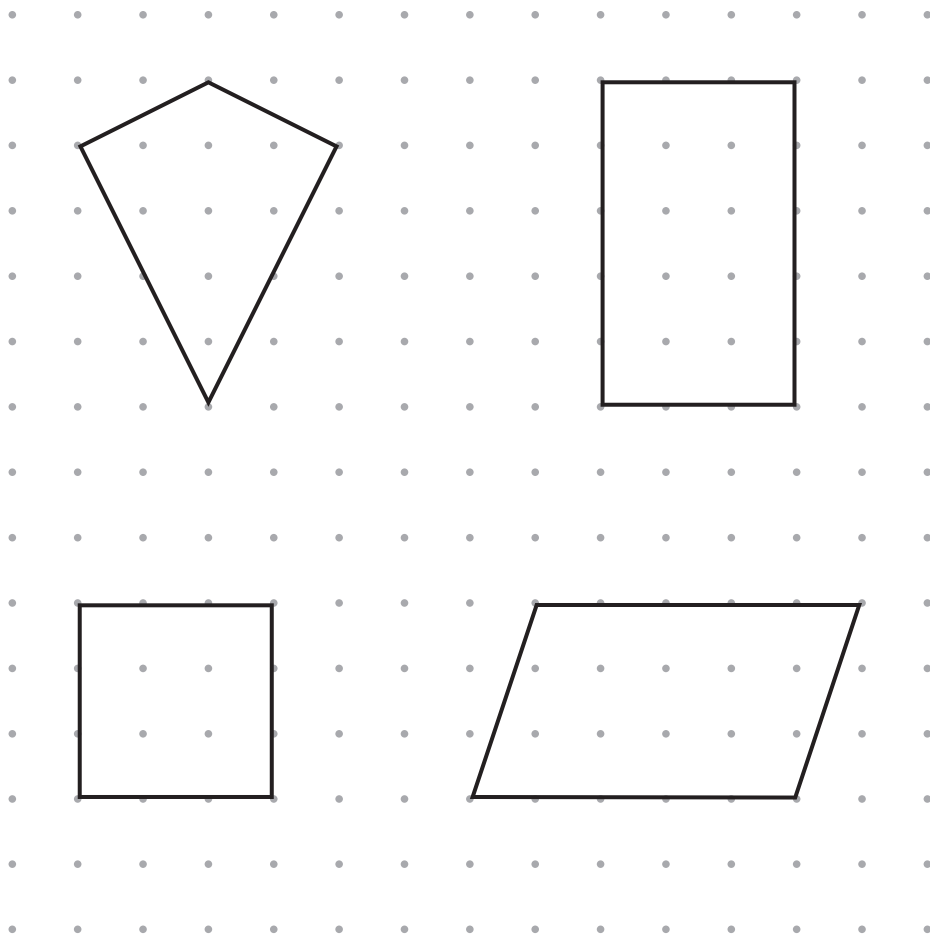
E 0 0 0 8 0 A 0 1 9 2 4

18

The diagonals of this quadrilateral cross at right angles.



Tick **all** the quadrilaterals that have diagonals which cross at right angles.



2 marks



19

Circle two numbers that multiply together to equal **1 million**.

200

2,000

5,000

50,000

1 mark

20

Lara had some money.

She spent £1.25 on a drink.

She spent £1.60 on a sandwich.

She has **three-quarters** of her money left.

How much money did Lara have to **start with**?

Show
your
method

2 marks

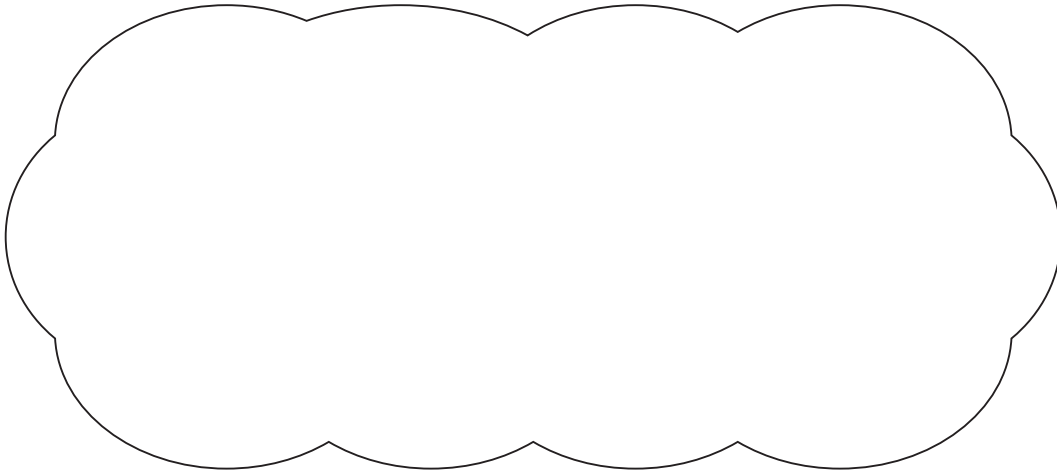


E 0 0 0 8 0 A 0 2 1 2 4

21

$$5,542 \div 17 = 326$$

Explain how you can use this fact to find the answer to 18×326



1 mark



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Standards
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Agency

2016 key stage 2 mathematics

Paper 3: reasoning

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