Ma

KEY STAGE 2

LEVEL 6

2014

Mathematics tests

Paper 1

Calculator **not** allowed

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 **may not** use a calculator to answer any questions in this test.

Work as quickly and as carefully as you can.

You have **30 minutes** for this test.

If you cannot do one of the questions, **go on to the next one**.

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

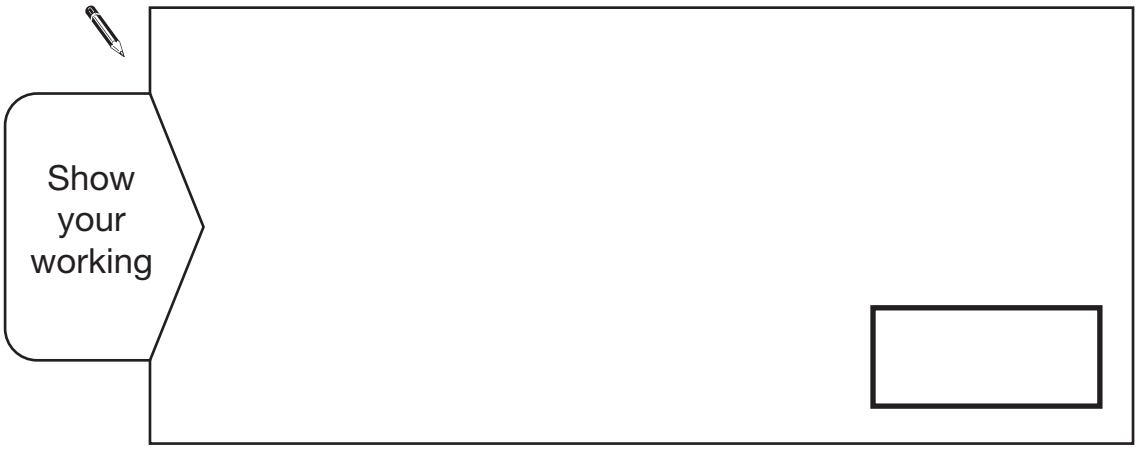
If you finish before the end, **go back and check your work**.

Follow the instructions for each question carefully.

This shows where you need to put the answer.

If you need to do working out, you can use any space on a page.

Some questions have an answer box like this:



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

1 Write the missing numbers so that $2a + 5b = 30$

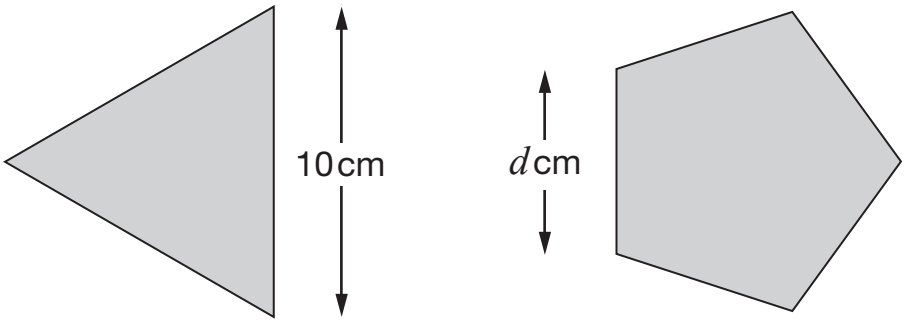
One is done for you.

$2a + 5b = 30$ when $a = 0$ and $b =$ 6

$2a + 5b = 30$ when $a = 5$ and $b =$ _____ 1 mark

$2a + 5b = 30$ when $a = 15$ and $b =$ _____ 1 mark

2 Here are an equilateral triangle and a regular pentagon.



Not actual size

Each side of the triangle is 10 cm
Each side of the pentagon is d cm

The perimeter of the pentagon is 4 centimetres more than the perimeter of the triangle.

What number does d represent?

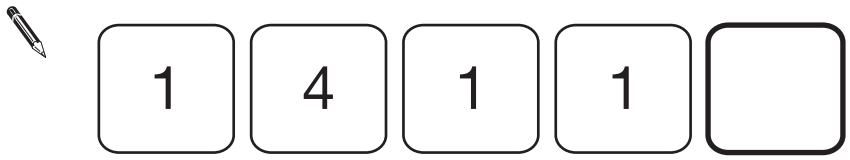
Show your working

$d =$ **cm**

2 marks

3 (a) Here are five number cards.

Write the missing number so that the **mean** is **2**

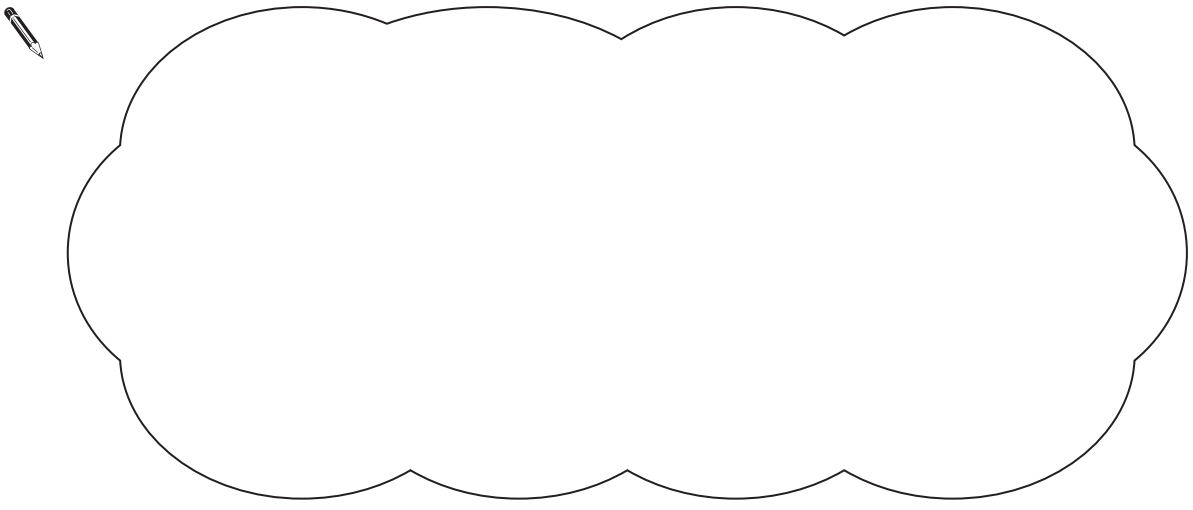


1 mark

(b) Here are the five number cards again.

It is **not possible** to write the missing number so that the **range** is **2**

Explain why not.



1 mark

4 Alfie and his brother walked from home to their school.

Their school is 2 kilometres from home.

The graph shows information about **Alfie's** journey.

(a) How does the graph show that Alfie walked at a **constant speed** for all of his journey?

_____

1 mark

(b) Alfie's brother left home **10** minutes **before** Alfie.

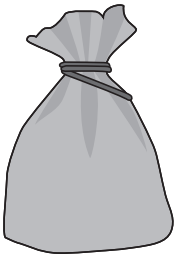
He arrived at school **20** minutes **after** Alfie.

He walked at a **constant speed** for all of his journey.

At what time did Alfie overtake his brother?

1 mark

5 Megan has a bag containing white counters and black counters.



There are 20 counters in the bag altogether.

The probability of choosing a **white** counter from the bag is 0.75

(a) How many white counters are in the bag?

1 mark

(b) Megan adds more **black** counters to the bag.

How many **black** counters must she add so that the probability of choosing a **white** counter is 0.25?

Show your working

2 marks

6 Emma thinks of two **prime** numbers.

She adds the two numbers together.

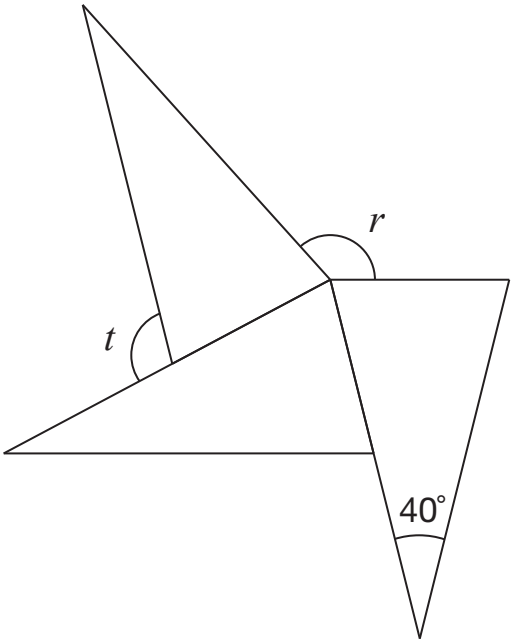
Her answer is 36

Write **all** the possible pairs of prime numbers Emma could be thinking of.

_____

2 marks

7 The diagram shows three **identical** isosceles triangles.



Not to scale

What are the sizes of angles r and t?

Show your working

$r =$ ____ °

$t =$ ____ °

2 marks

8 (a) Write numbers in the boxes to make this fraction calculation correct.

$$\frac{1}{\square} + \frac{\square}{5} = \frac{7}{10}$$

1 mark

(b) Now write two **different** numbers to make the calculation correct.

$$\frac{1}{\square} + \frac{\square}{5} = \frac{7}{10}$$

1 mark

9 Jack has two **square-based pyramids** that are the same size.

He sticks the square faces together to make a new 3-D shape.

How many **faces** and how many **edges** does his new 3-D shape have?

	faces	and		**edges**

1 mark

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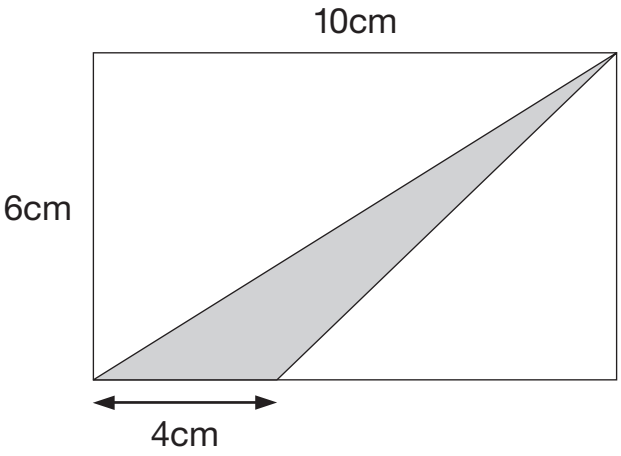
10 Write the missing number.

$$12.5 \div \square = 7.5 \div 1.5$$

1 mark

11 The diagram shows a shaded triangle inside a rectangle.



Not actual size

What is the area of the shaded triangle?

Show your working

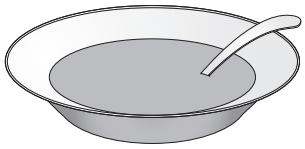
cm²

2 marks

12 Alfie did a survey to find which soup was most popular.

The choices were:

- tomato
- chicken
- mushroom



A quarter of the children chose chicken soup.

Four times as many children chose tomato soup as chose mushroom soup.

Alfie makes a pie chart to show this information.

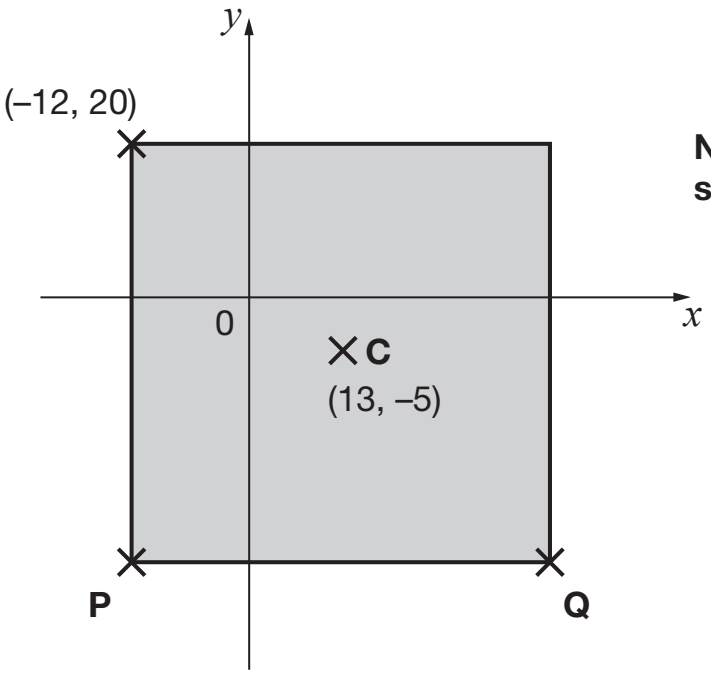
What **angle** should he use for the children who chose tomato soup?

Show your working

°

3 marks

13 Here is a square on coordinate axes.



C is the centre of the square.

Find the coordinates of **P** and **Q**.

P is (,)

1 mark

Q is (,)

1 mark

Standards
& Testing
Agency

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Print version product code: STA/14/7052/p ISBN: 978-1-78315-206-3
Electronic PDF version product code: STA/14/7052/e ISBN: 978-1-78315-222-3

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