

Ma

KEY STAGE

2

LEVEL

6

## Mathematics tests

# Paper 1

Calculator **not** allowed

2014

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

[BLANK PAGE]

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.

$$2a + 5b = 30 \quad \text{when } a = 0 \quad \text{and } b = \underline{6}$$



$$2a + 5b = 30 \quad \text{when } a = 5 \quad \text{and } b = \underline{\hspace{2cm}}$$

---

1 mark

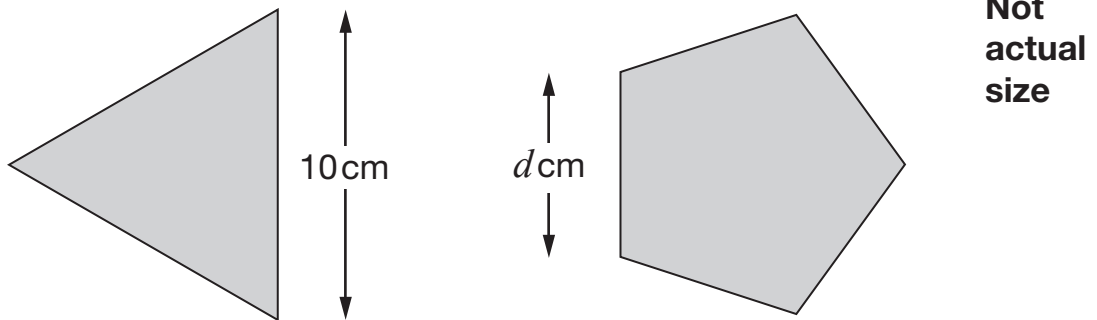
$$2a + 5b = 30 \quad \text{when } a = 15 \quad \text{and } b = \underline{\hspace{2cm}}$$

---

1 mark

2

Here are an equilateral triangle and a regular pentagon.




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	4	1	1	
---	---	---	---	--

1 mark

(b) Here are the five number cards again.

1	4	1	1	
---	---	---	---	--

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

Explain why not.



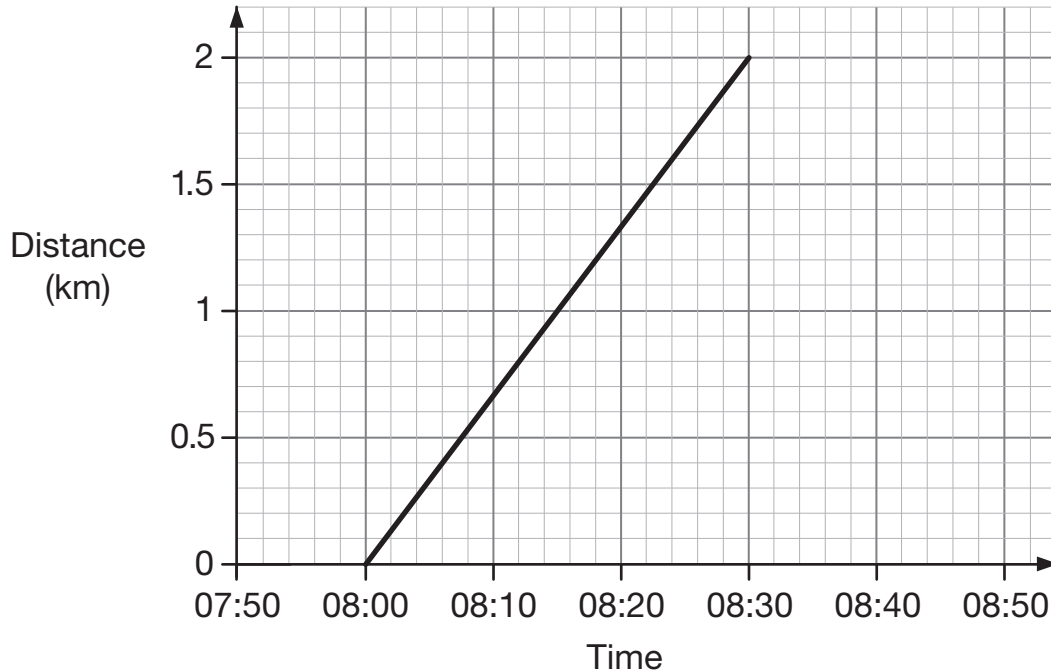
1 mark

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?



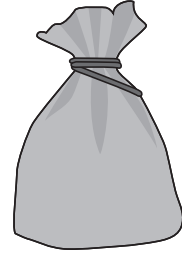
1 mark

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.

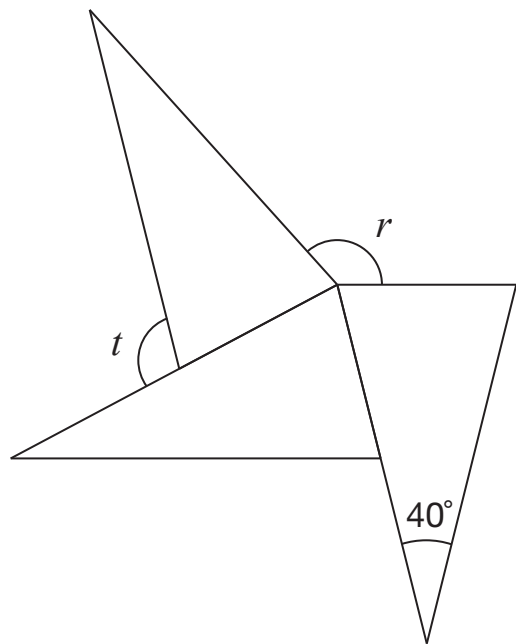


---

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

10

Write the missing number.

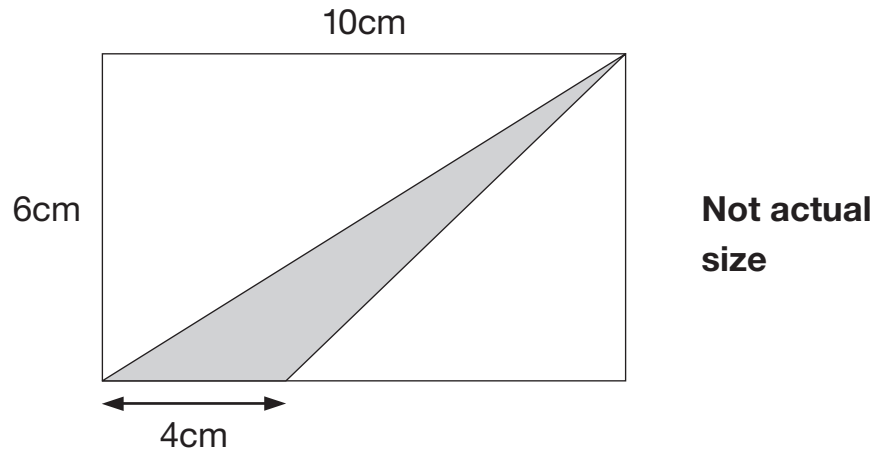


$$12.5 \div \square = 7.5 \div 1.5$$

1 mark

11

The diagram shows a shaded triangle inside a rectangle.



What is the area of the shaded triangle?

Show your working

cm<sup>2</sup>

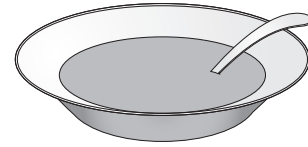
2 marks

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?

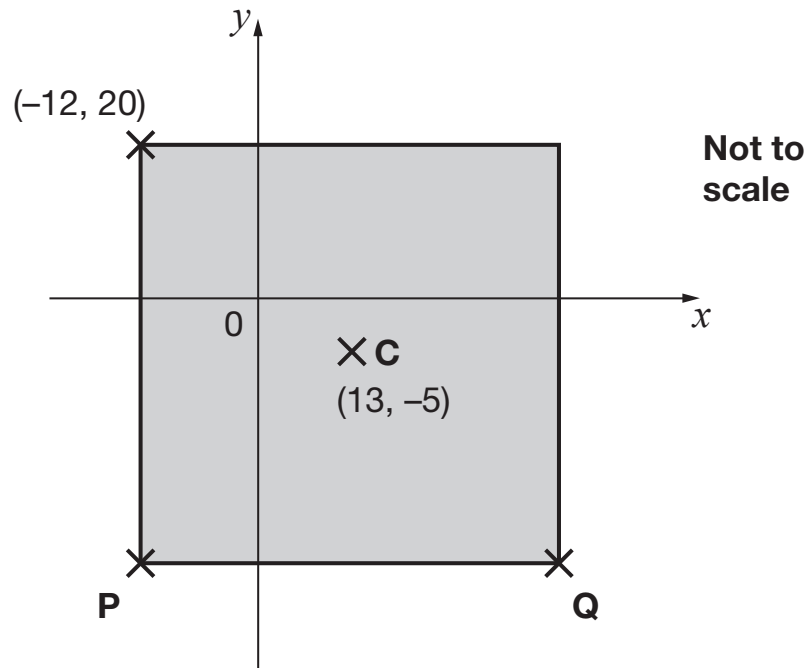
 Show your working


A small, empty rectangular box with a small circle inside, likely a placeholder for a mark or answer.

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

2014 key stage 2 level 6 mathematics: paper 1 – calculator not allowed  
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

**For more copies**

Additional printed copies of this booklet are not available. It can be downloaded from [www.gov.uk/government/publications](http://www.gov.uk/government/publications).

© Crown copyright and Crown information 2014

**Re-use of Crown copyright and Crown information in test materials**

Subject to the exceptions listed below, the test materials on this website are Crown copyright or Crown information and you may re-use them (not including logos) free of charge in any format or medium in accordance with the terms of the Open Government Licence v2.0 which can be found on the National Archive website and accessed via the following link: [www.nationalarchives.gov.uk/doc/open-government-licence/version/2](http://www.nationalarchives.gov.uk/doc/open-government-licence/version/2).

**Exceptions - third party copyright content in test materials**

You must obtain permission from the relevant copyright owners, as listed in the '2014 key stage 2 test materials copyright report', for re-use of any third party copyright content which we have identified in the test materials, as listed below. Alternatively you should remove the unlicensed third party copyright content and/or replace it with appropriately licensed material.

**Third party content**

These materials contain no third party copyright content.

If you have any queries regarding these test materials contact the national curriculum assessments helpline on 0300 303 3013 or email [assessments@education.gov.uk](mailto:assessments@education.gov.uk).