

**Ma**

KEY STAGE

**3**

TIER

**3–5****2004**

# Mathematics test

## Paper 1

### Calculator not allowed

Please read this page, but do not open your booklet until your teacher tells you to start. Write your name and the name of your school in the spaces below.

**First name** \_\_\_\_\_

**Last name** \_\_\_\_\_

**School** \_\_\_\_\_

#### Remember

- The test is 1 hour long.
- You **must not** use a calculator for any question in this test.
- You will need: pen, pencil, rubber, ruler, mirror and tracing paper (optional).
- This test starts with easier questions.
- Try to answer all the questions.
- Write all your answers and working on the test paper – do not use any rough paper. Marks may be awarded for working.
- Check your work carefully.
- Ask your teacher if you are not sure what to do.

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For marker's  
use only

Total marks	
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## Instructions

### Answers



This means write down your answer or show your working and write down your answer.

### Calculators



You **must not** use a calculator to answer any question in this test.

1. Fill in the missing numbers.

$$\boxed{68} + \boxed{\begin{array}{c} \text{pencil} \\ \dots\dots\dots \end{array}} = \boxed{100}$$

.....  
1 mark

$$\boxed{20} \times \boxed{\begin{array}{c} \text{pencil} \\ \dots\dots\dots \end{array}} = \boxed{100}$$

.....  
1 mark

$$\boxed{300} \div \boxed{\begin{array}{c} \text{pencil} \\ \dots\dots\dots \end{array}} = \boxed{100}$$

.....  
1 mark

$$\boxed{65} \times \boxed{2} - \boxed{\begin{array}{c} \text{pencil} \\ \dots\dots\dots \end{array}} = \boxed{100}$$

.....  
1 mark



2. The tables show information about 5 pupils.

This table shows which school clubs they go to.

**School Clubs**

	Chess	Drama	French	Maths
Ann	✗	✓	✓	✗
Mike	✗	✓	✓	✗
Paul	✗	✗	✗	✓
Sule	✓	✗	✓	✓
Tamsin	✗	✓	✗	✗

This table shows how many pets they have.

**Pets**

	Cats	Dogs	Mice	Parrots	Snakes
Ann	0	1	0	0	0
Mike	0	0	3	0	2
Paul	2	0	2	2	0
Sule	1	0	0	0	0
Tamsin	1	2	0	2	0

Use the tables to answer these questions.

(a) How many of the pupils go to the French Club?



.....

.....  
1 mark

(b) Which club does Tamsin go to?



.....

.....  
1 mark

(c) Who has the greatest number of pets?



.....

.....  
1 mark

(d) One pupil said:

When I was at French Club last night, my cat had kittens.

Who is the only pupil that could have said this?



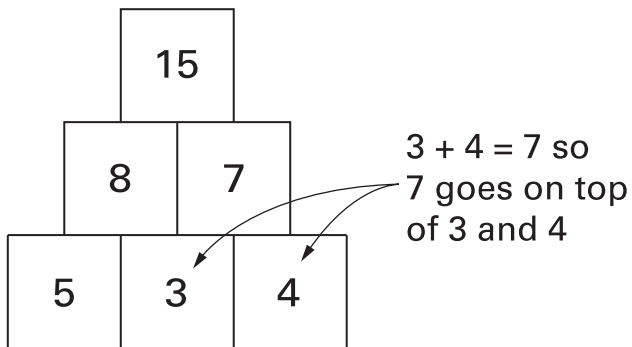
.....

.....  
1 mark

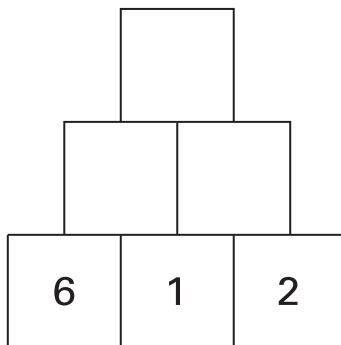


3. This question is about number pyramids.

You **add two numbers** to work out the number that goes on top of them.

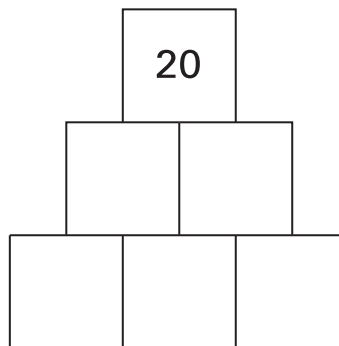
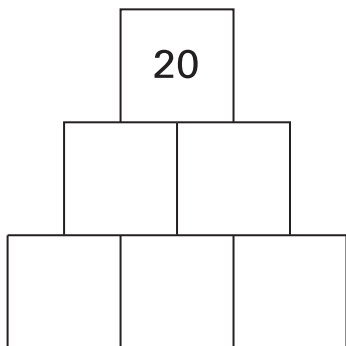


(a) Complete the number pyramid below.



.....  
1 mark

(b) Complete the number pyramid below in two **different** ways.



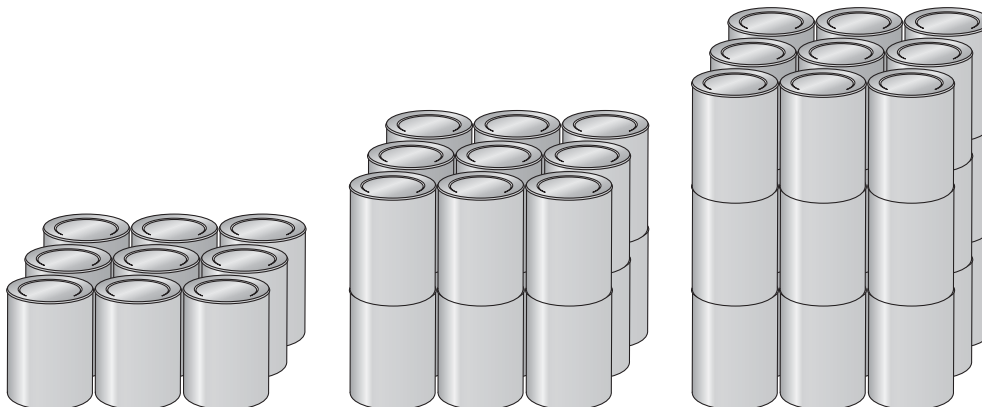
.....  
1 mark

.....  
1 mark

4. (a) A shopkeeper stacks tins.

In each layer there are the same number of tins.

**How many tins** are in each stack below?



.....

.....

.....

.....  
1 mark

(b) The shopkeeper stacks jars in layers.

Each layer looks like this.



**How many jars** will be in the stack when it is **5 layers** high?



.....

.....  
1 mark

(c) The shopkeeper stacks **30 boxes** in layers.

In each layer there are **5 boxes**.

**How many layers** high is the stack?



.....

.....  
1 mark



5. (a) Add together 147 and 376



.....

.....  
1 mark

(b) Subtract 36 from 218



.....

.....  
1 mark

(c) Multiply 49 by 3



.....

.....  
1 mark

(d) Divide 160 by 4



.....

.....  
1 mark



6. There are **seven different ways** to make **8p** with coins.

Complete the table to show the seven ways to make 8p.

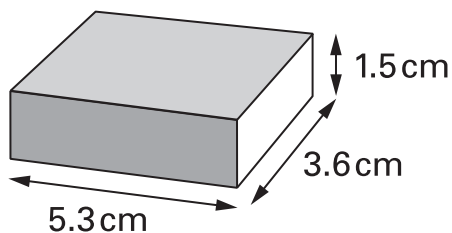
Two have been done for you.

Number of <b>5p</b> coins	Number of <b>2p</b> coins	Number of <b>1p</b> coins
0	0	8
0	1	6

.....  
 .....  
 .....  
 3 marks



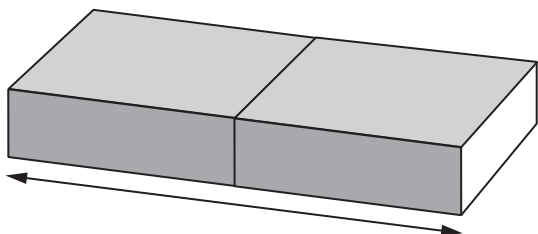
7. The diagram shows a matchbox.  
 Its length is 5.3cm. Its width is 3.6cm. Its height is 1.5cm.



Not drawn accurately

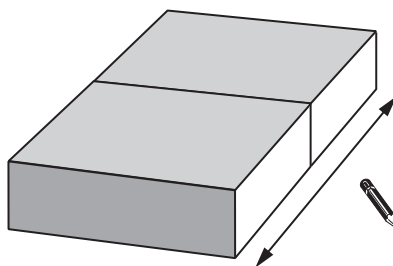
- (a) I join **two** matchboxes in different ways.

Fill in the missing values.



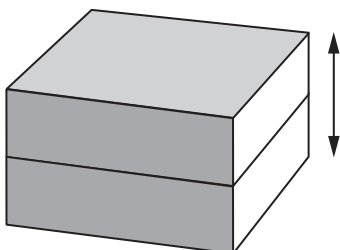
length =                  cm

.....  
1 mark



width =                  cm

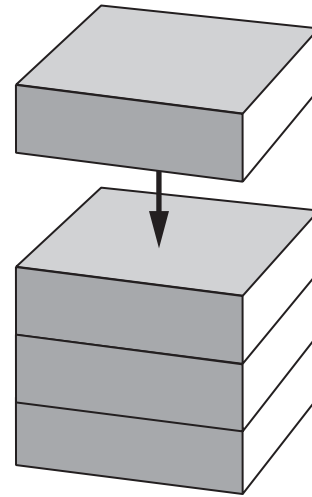
.....  
1 mark



height =                  cm

.....  
1 mark

(b) I start joining matchboxes like this:



How many matchboxes will be in the pile when its height is **12 cm**?

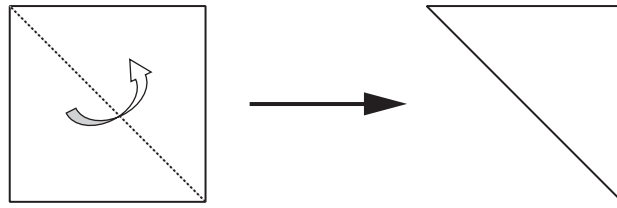


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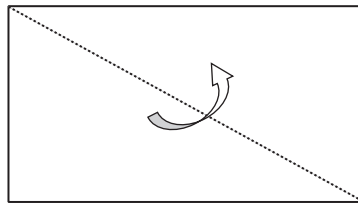
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1 mark



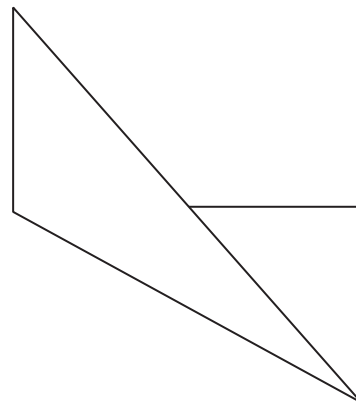
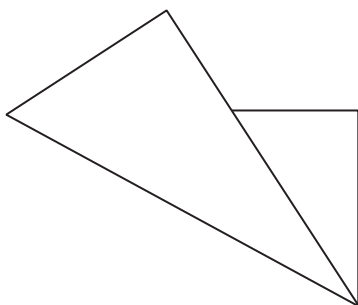
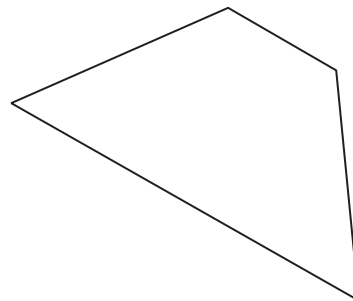
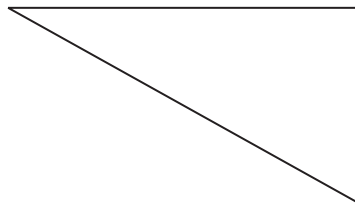
8. When you fold a **square** along a diagonal, you see a triangle.



(a) What do you see when you fold a **rectangle** along a diagonal?



Ring the correct answer below.

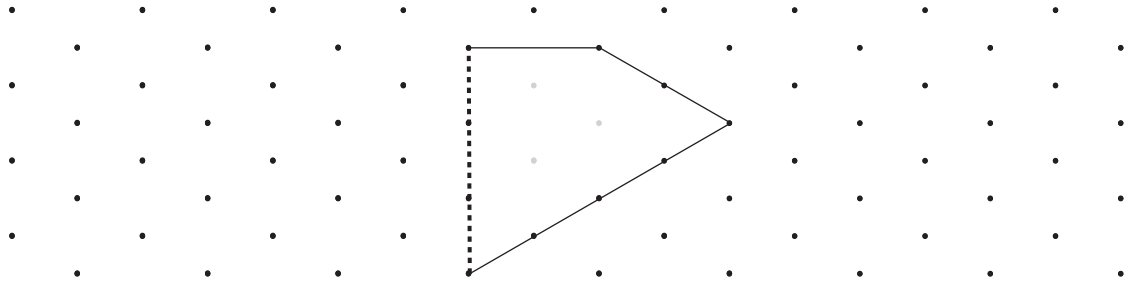


1 mark

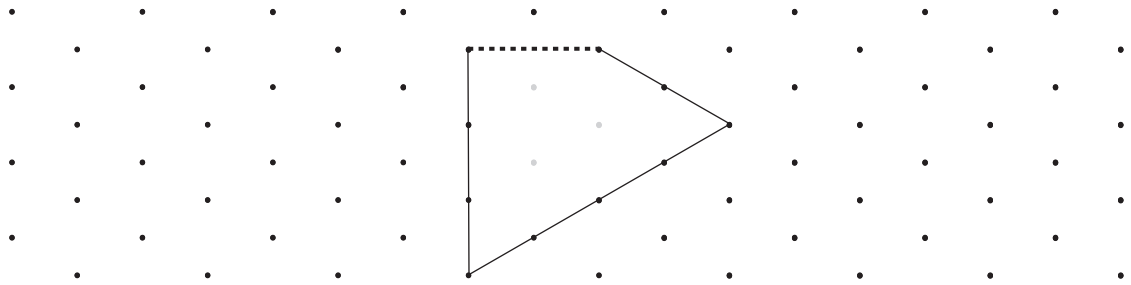
(b) Three different shapes are folded along a line of symmetry.

For each shape, the **dashed line** is the **fold line**.

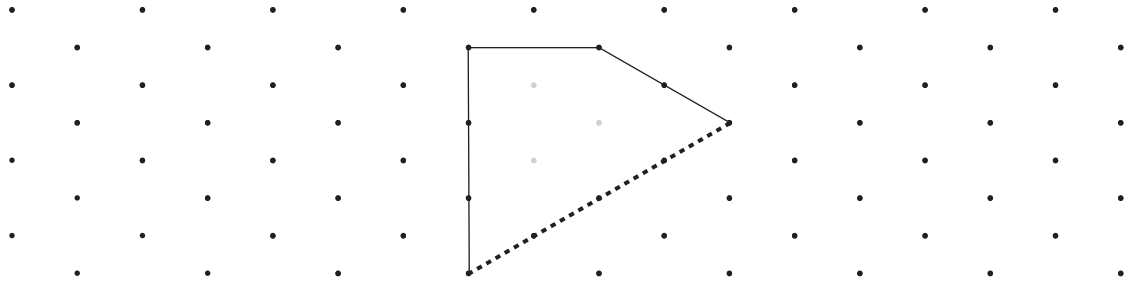
For each shape, draw what the shape looked like **before** it was folded.



1 mark



1 mark



1 mark

Isometric grid



9. I buy a widescreen television costing **£1290**  
I pay **£900 now**, then  
I pay the rest of the money in **3 equal payments**.

How much is each payment?

Show your working.

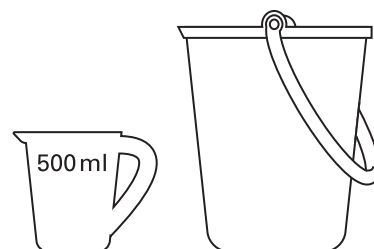


£

.....  
.....  
2 marks

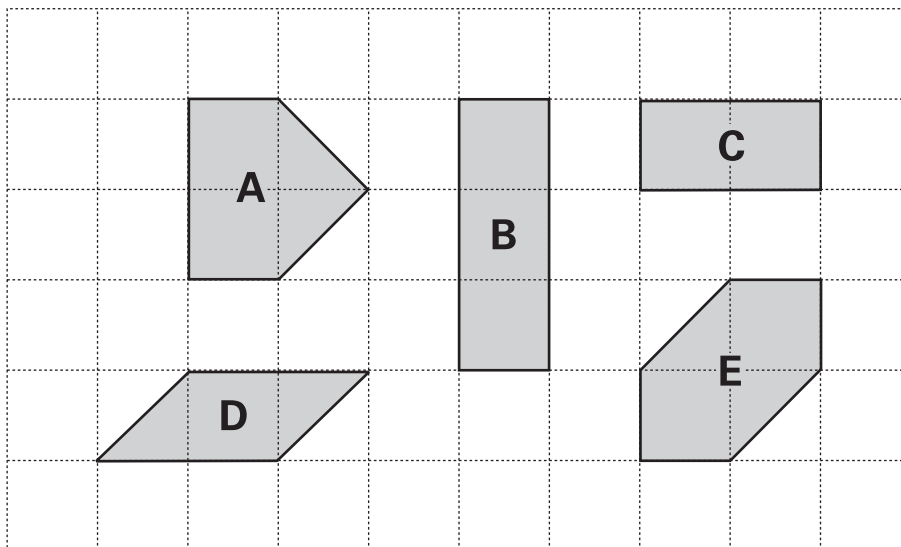
10. Steve needs to put **1 litre** of water in a bucket.  
He has a **500ml** jug.

Explain how he can measure 1 litre of water.



.....  
1 mark

11. The diagram shows some shapes on a 10 by 6 square grid.



(a) Which **two** shapes have the **same area** as shape **A**?



.....

.....  
1 mark

(b) Which **two** shapes have the **same perimeter** as shape **A**?



.....

.....  
1 mark

(c) How many of shape **C** would you need to cover a 10 by 6 square grid?

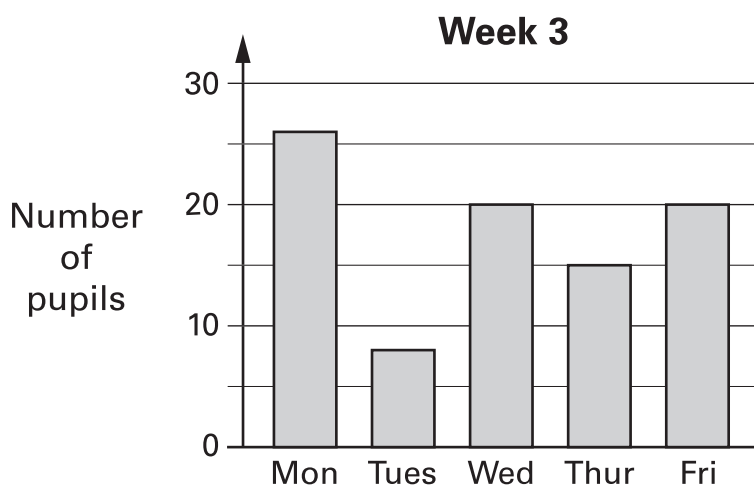
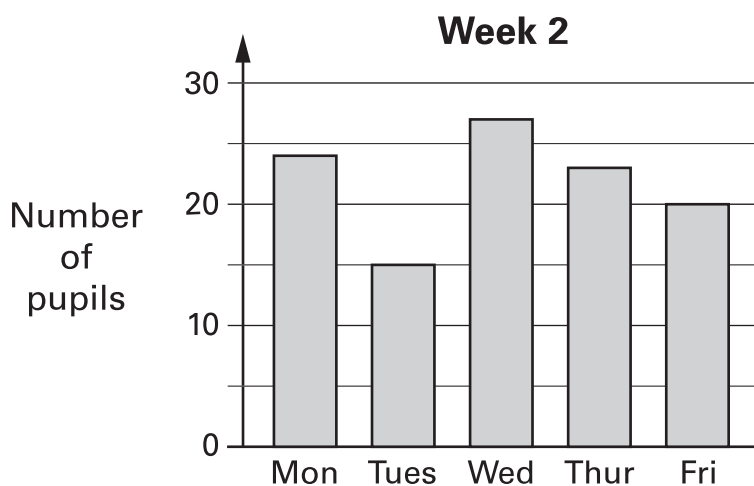
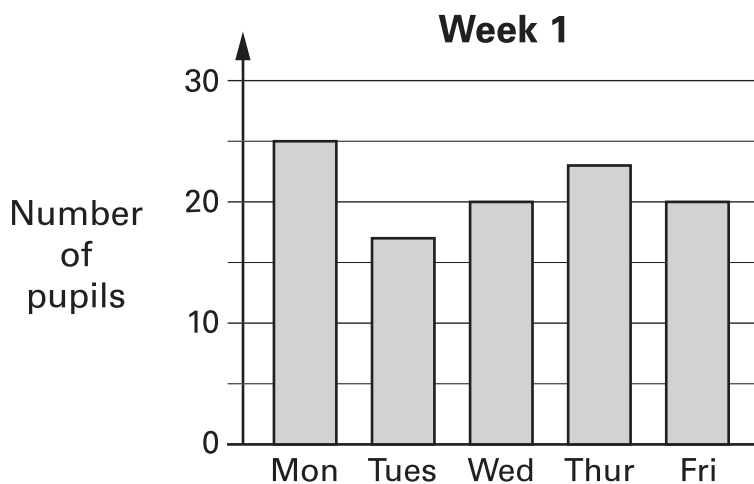


.....

.....  
1 mark



12. The bar charts show how many pupils went to a maths club.





Is each statement below true or false,  
or is there not enough information to tell?

Tick (✓) the correct box.

- (a) In each of these weeks, the day with the **most pupils** was **Monday**.



True

False

Not enough information

Explain your answer.



1 mark

- (b) In each of these weeks, the **same number** of pupils went to the club  
on **Friday**.



True

False

Not enough information

Explain your answer.



1 mark

- (c) In each of these weeks, the **same pupils** went to the club on **Friday**.



True

False

Not enough information

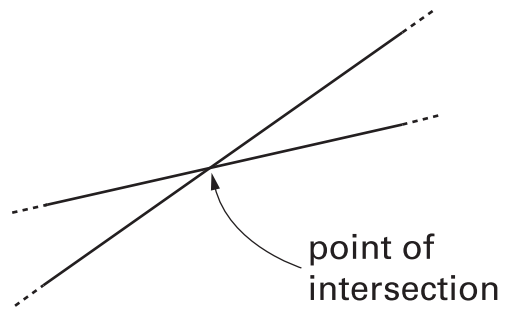
Explain your answer.



1 mark



13. The diagram shows two straight lines.  
Where the lines **cross** is called  
a **point of intersection**.



- (a) Draw **three** straight lines that have only **one** point of intersection.



.....  
1 mark

- (b) Now draw **three** straight lines that have **three** points of intersection.



.....  
1 mark

- (c) **Three** straight lines have exactly **two** points of intersection.

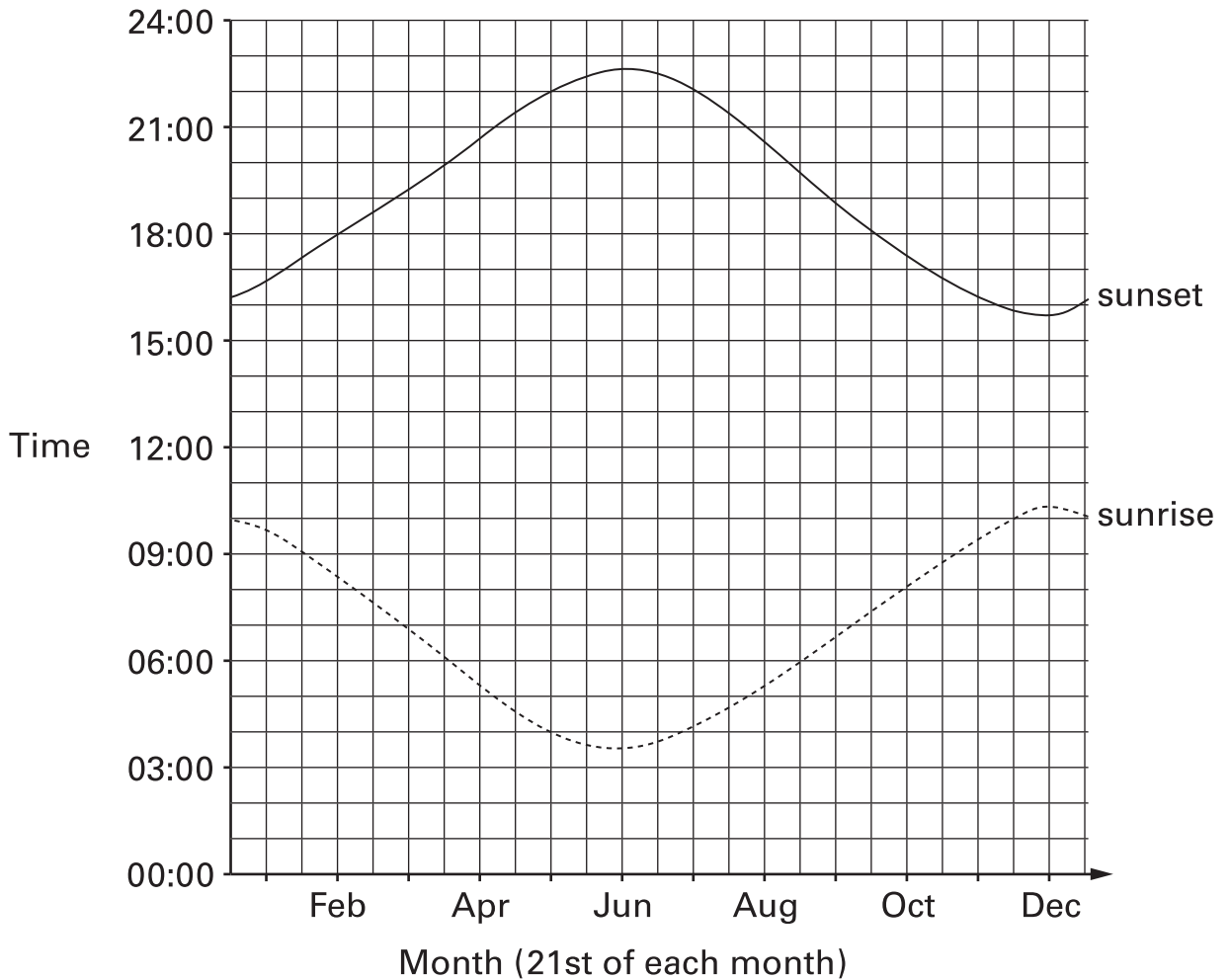
Complete the sentence below.



Two of the lines must be .....

.....  
1 mark

14. The graph shows at what **time** the sun rises and sets in the American town of Anchorage.



The day with the **most** hours of daylight is called the longest day.

Fill in the gaps below, using the information from the graph.



The **longest day** is in the month of .....

On this day, there are about ..... hours of daylight.

The **shortest day** is in the month of .....

On this day, there are about ..... hours of daylight.

.....

.....

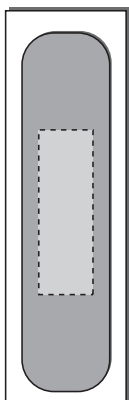
.....

3 marks

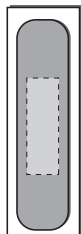


15. I buy a box of different size plasters.

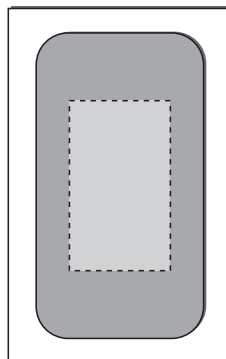
Assume each plaster is equally likely to be the top plaster inside the box.



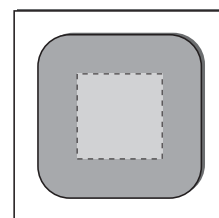
**16** plasters  
of **size A**



**16** plasters  
of **size B**



**2** plasters  
of **size C**



**1** plaster  
of **size D**

Altogether there are **35** plasters.

I take the top plaster from inside the box.

(a) What is the probability that the plaster is of **size D**?



.....  
1 mark

(b) What is the probability that the plaster is of **size A**?



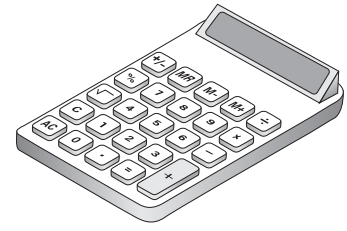
.....  
1 mark

(c) What is the probability that the plaster is **not** of **size A**?



.....  
1 mark

16. You can buy a new calculator for **£1.25**



In 1979 the same type of calculator cost **22 times** as much as it costs now.

How much did the same type of calculator cost in 1979?

Show your working.

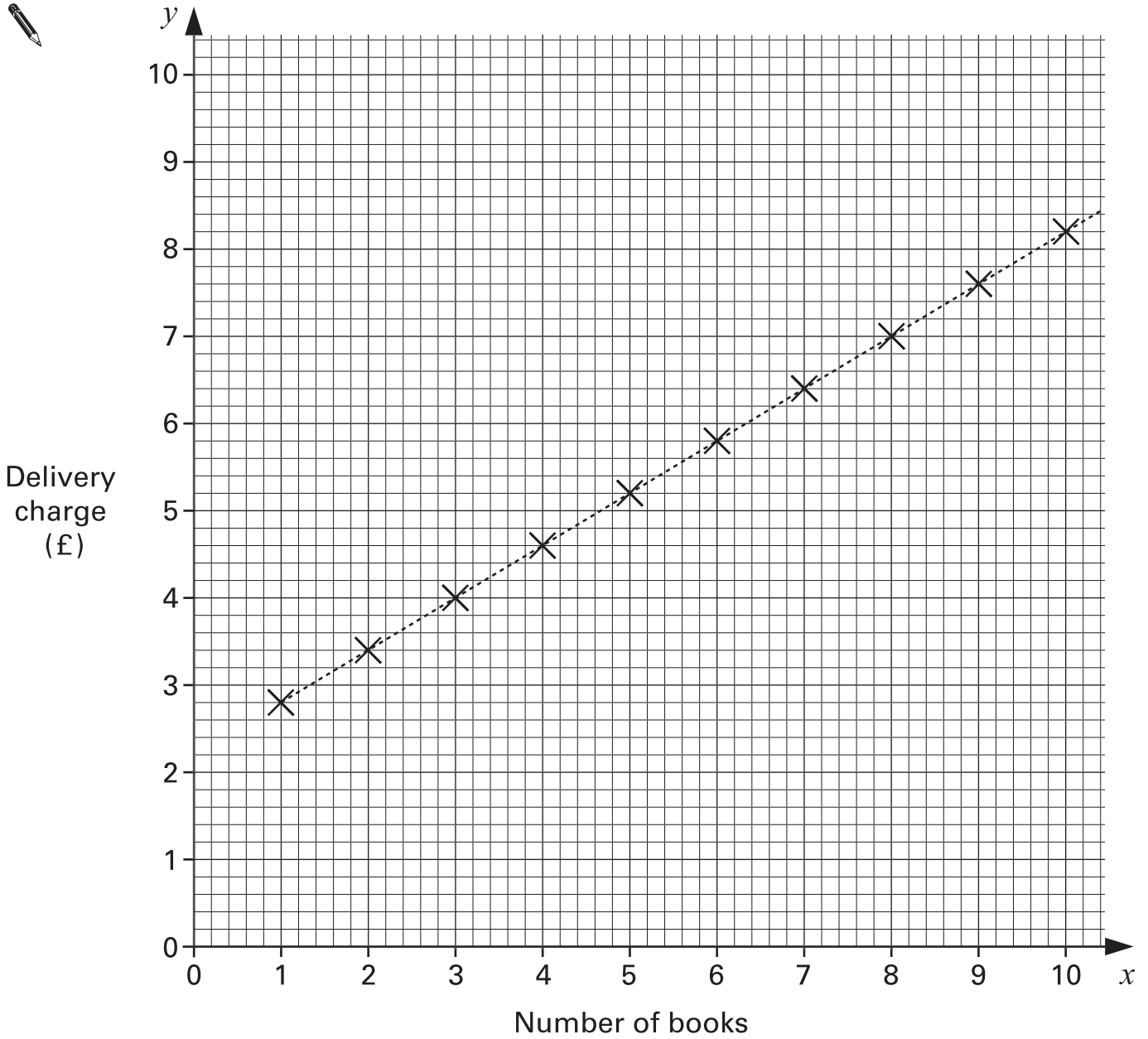


£

. . . . .  
. . . . .  
2 marks



17. A company sells books using the internet.  
The graph shows their delivery charges.



(a) Use the graph to fill in the values in this table.

Number of books	Delivery charge (£)
8	
9	

.....  
1 mark

(b) For every extra book you buy, how much more must you pay for delivery?

..... p

.....  
1 mark

(c) A second company sells books using the internet.

Its delivery charge is **£1.00 per book**.

On the graph opposite, draw a line to show this information.

.....  
1 mark

(d) Complete the sentence.

.....  
Delivery is cheaper with the **first** company  
if you buy at least ..... books.

.....  
1 mark



18. One way to make a magic square is to substitute numbers into this algebra grid.

$a + b$	$a - b + c$	$a - c$
$a - b - c$	$a$	$a + b + c$
$a + c$	$a + b - c$	$a - b$

- (a) Complete the magic square below using the values

$$a = 10$$

$$b = 3$$

$$c = 5$$



		5
	10	
15		

.....  
 .....  
 2 marks



(b) Here is the algebra grid again.

$a + b$	$a - b + c$	$a - c$
$a - b - c$	$a$	$a + b + c$
$a + c$	$a + b - c$	$a - b$

I use **different values** for  $a$ ,  $b$  and  $c$  to complete the magic square.

20	21	7
3	16	29
25	11	12

What values for  $a$ ,  $b$  and  $c$  did I use?

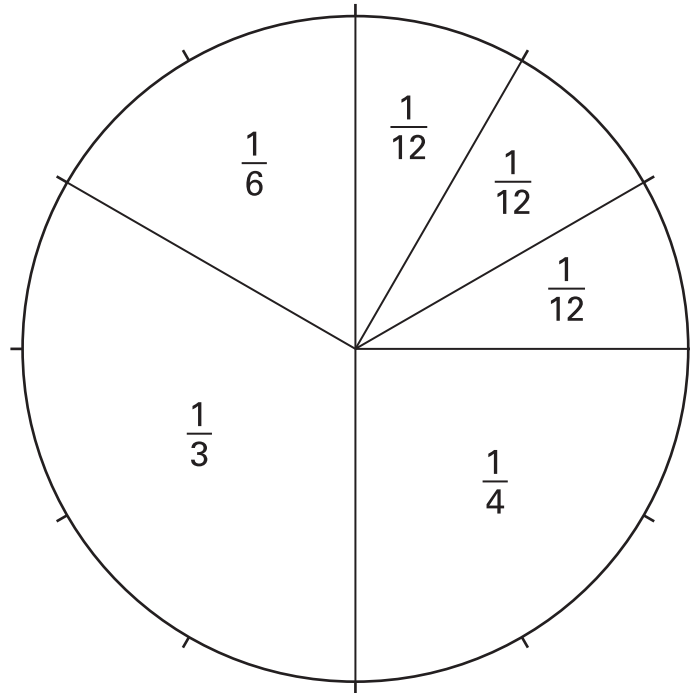


$a = \dots\dots\dots$        $b = \dots\dots\dots$        $c = \dots\dots\dots$

.....  
 .....  
 2 marks



19. Look at this diagram.



The diagram can help you work out some fraction calculations.

Calculate



$$\frac{1}{12} + \frac{1}{4} =$$

.....  
1 mark

$$\frac{1}{3} + \frac{1}{4} =$$

.....  
1 mark

$$\frac{1}{3} - \frac{1}{6} =$$

.....  
1 mark

**END OF TEST**



