KEY STAGE

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Mathematics test **Paper 1** Calculator not allowed

Please read this page, but do not open the booklet until your teacher tells you to start. Write your name and the name of your school in the spaces below. If you have been given a pupil number, write that also.

First name		
Last name		
School		
		_
Pupil number		

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 and a ruler.
- Some formulae you might need are on page 2.
- 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.
- Check your work carefully.
- Ask your teacher if you are not sure what to do.

For marker's use only

Total marks

Instructions

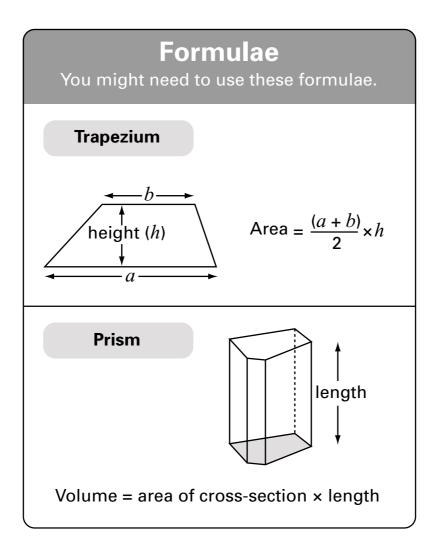
Answers

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

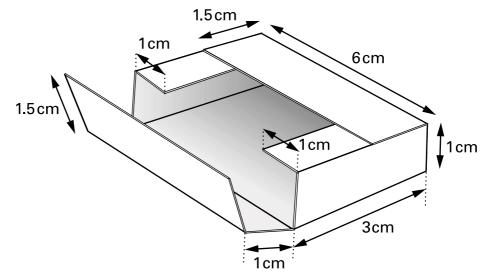
Calculators



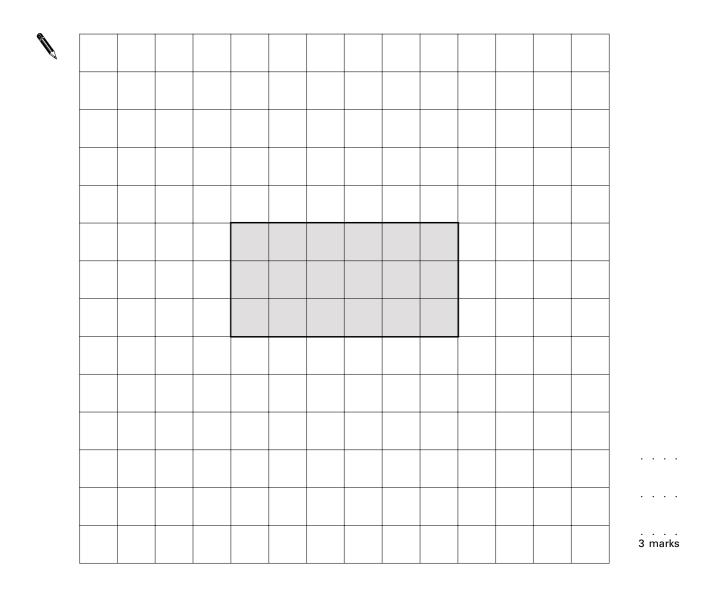
You **must not** use a calculator to answer any question in this test.



1. The diagram shows a box.



Complete the **net** for the box.



. . . . 1 mark

Mark and Kate each buy a family pack of crisps.
Each family pack contains ten bags of crisps.

The table shows how many bags of each flavour are in each family pack.

flavour	number of bags
plain	5
vinegar	2
chicken	2
cheese	1

(a) Mark is going to take a bag of crisps at random from his family pack.Complete these sentences.

Ŋ	The probability that the flavour will be $\dots \dots \dots \dots$ is $\frac{1}{2}$	 1 mark
	The probability that the flavour will be cheese is	 1 mark
(b)	Kate ate two bags of plain crisps from her family pack of 10 bags.	

Now she is going to take a bag at random from the bags that are left.

What is the probability that the flavour will be **cheese**?

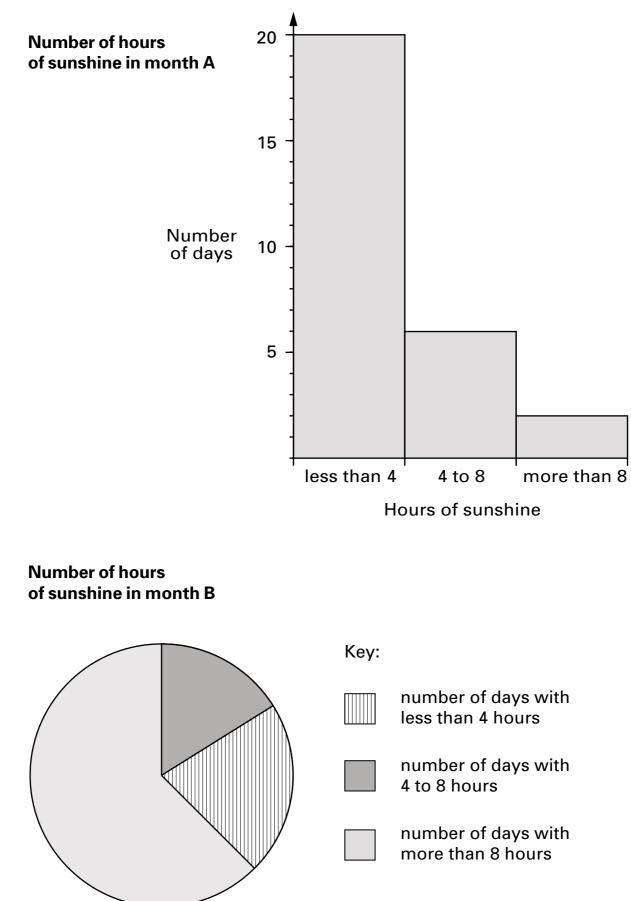
(c) A shop sells **12 bags** of crisps in a large pack.I am going to take a bag at random from the large pack.

The table below shows the probability of getting each flavour.

Use the probabilities to work out **how many bags** of each flavour are in this large pack.

flavour	probability	number of bags
plain	<u>7</u> 12	
vinegar	<u>1</u> 4	
chicken	<u>1</u> 6	
cheese	0	

. 2 marks **3.** The diagrams show the number of hours of sunshine in two different months.



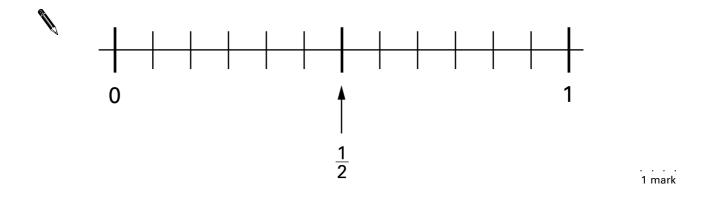
(a)	How many days are there in month A ?
	Tick (\checkmark) the correct box.
	28 29 30 31 not possible to tell
(b)	How many days are there in month B ? Tick (🖌) the correct box.
N	28 29 30 31 not possible to tell 1 mark
(c)	Which month had more hours of sunshine? Tick (🖌) the correct box.
Ø	month A month B
	Explain how you know.

4. (a) Look at these fractions.

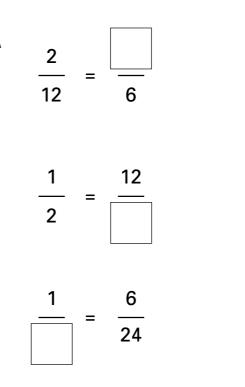
1	1	5
2	3	6

Mark each fraction on the number line.

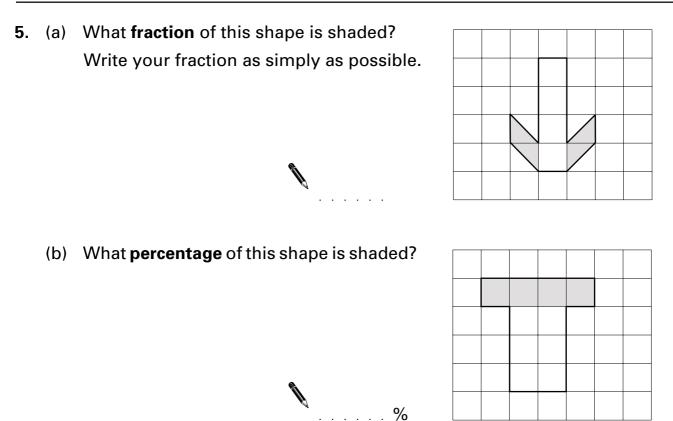
The first one is done for you.



(b) Fill in the missing numbers in the boxes.



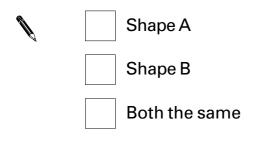
. . . . 2 marks



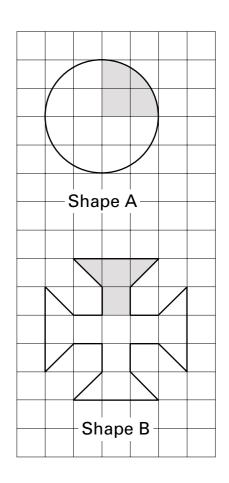
. . . . 1 mark

. . . . 1 mark

(c) Which shape has the greater percentage shaded?
Tick (✓) the correct box.



Explain how you know.



6. (a) A football club is planning a trip.The club hires 234 coaches. Each coach holds 52 passengers.

How many passengers is that altogether? Show your working.

..... passengers

2 marks

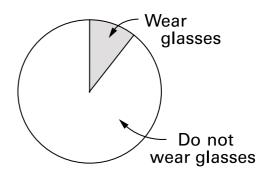
(b) The club wants to put one first aid kit into each of the 234 coaches. These first aid kits are sold in **boxes of 18**

How many boxes does the club need?

.... boxes

- 7. There are 60 pupils in a school.6 of these pupils wear glasses.
 - (a) The pie chart is not drawn accurately.

What should the angles be? Show your working.





(b) Exactly **half** of the 60 pupils in the school are boys.

From this information, what **percentage of boys** in this school **wear glasses**? Tick (\checkmark) the correct box below.

N		
5%	6%	10%
20%	50%	not possible to tell
		 1 mark

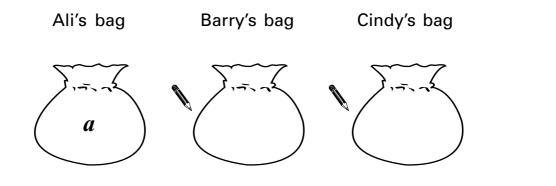
Ali, Barry and Cindy each have a bag of counters.
They do not know how many counters are in each bag.
They know that

Barry has **two more** counters than Ali.

Cindy has four times as many counters as Ali.

(a) Ali calls the number of counters in her bag *a*

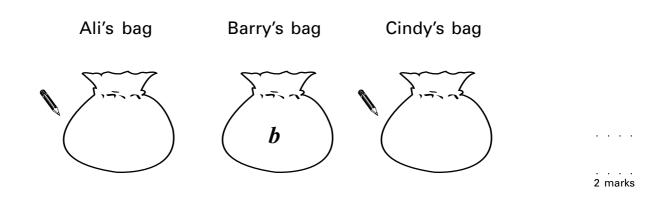
Write **expressions using** *a* to show the number of counters in Barry's bag and in Cindy's bag.



1 mark

(b) Barry calls the number of counters in his bag \boldsymbol{b}

Write **expressions using** *b* to show the number of counters in Ali's bag and in Cindy's bag.



(c) Cindy calls the number of counters in her bag c



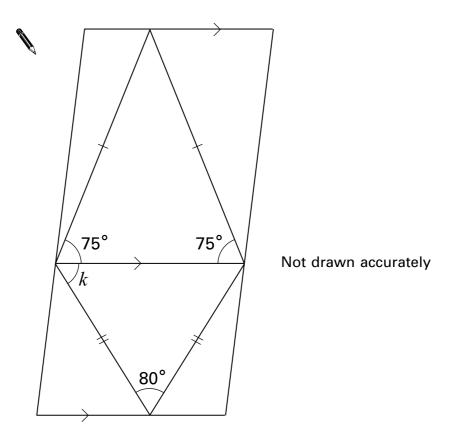
Which of the expressions below shows the number of counters in **Barry's** bag?

Circle the correct one.

4c + 2 4c - 2 $\frac{c}{4} + 2$

С	<i>c</i> + 2	<i>c</i> – 2	
$\frac{1}{4} - 2$	4	4	1 mark

9. The diagram shows two isosceles triangles inside a parallelogram.

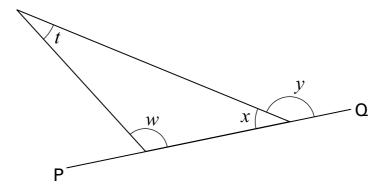


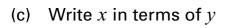
- (a) On the diagram, mark another angle that is 75° Label it 75°
- (b) Calculate the size of the angle marked kShow your working.

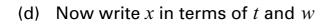
Ą.

N

Now look at the triangle drawn on the straight line PQ







. . . . 1 mark

. . . . 1 mark

(e) Use your answers to parts (c) and (d) to show that y = t + w

10. Here are three number cards. The numbers are hidden. ? ? ?

The **mode** of the three numbers is **5** The **mean** of the three numbers is **8**

What are the three numbers? Show your working.

. . . .

. . . . 2 marks

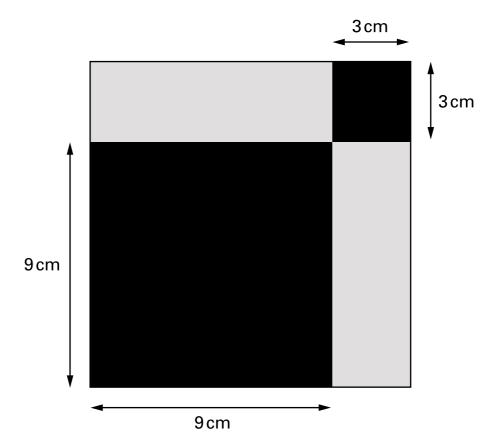
11. On a farm **80** sheep gave birth.

30% of the sheep gave birth to two lambs. The rest of the sheep gave birth to just one lamb.

In total, how many lambs were born? Show your working.

. lambs

. . . . 2 marks **12.**Two parts of this square design are shaded black.Two parts are shaded grey.



Show that the ratio of black to grey is 5:3

. . . .

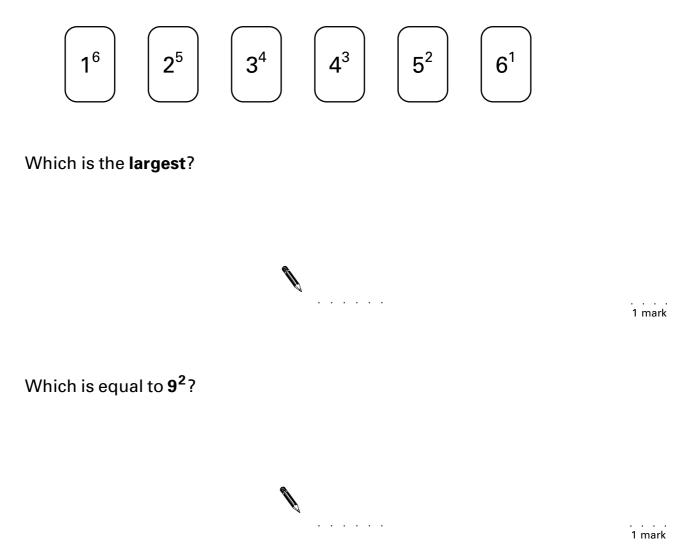
. . . . 2 marks **13.** (a) Solve this equation.

$$7 + 5k = 8k + 1$$

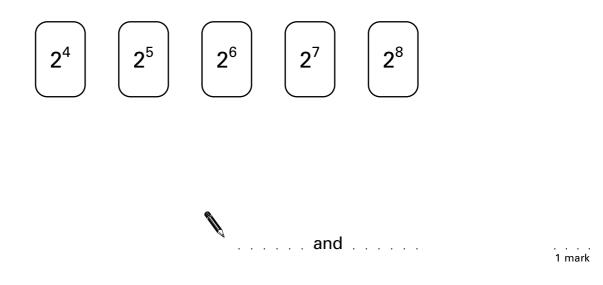
(b) Solve this equation. Show your working.

$$10y + 23 = 4y + 26$$

14. (a) Look at these numbers.



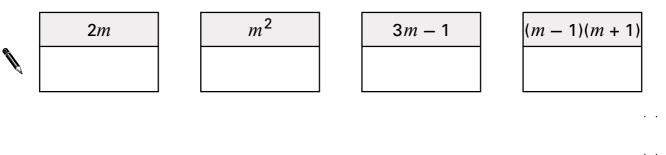
(b) Which two of the numbers below are not square numbers?



15. (a) *m* is an **odd** number.

Which of the numbers below must be even, and which must be odd?

Write 'odd' or 'even' under each one.

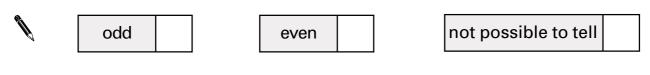


. . . . 2 marks

(b) *m* is an **odd** number.

Is the number $\frac{m+1}{2}$ odd, or even, or is it not possible to tell?

Tick (\checkmark) the correct box.



Explain your answer.

1 mark

2 marks

. . . . 1 mark

16. (a) Alan has a guessing game on his computer.He estimates that the probability of winning each game is 0.35

Alan decides to play **20** of these games. How many of these games should he expect to **win**?



.

 (b) Sue played the same computer game.
She won 12 of the games she played, and so she estimated the probability of winning each game to be 0.4
How many games did Sue play? Show your working.

(c)	The manufacturers of another guessing game claim that the probability of	
	winning each game is 0.65	

Karen plays this game 200 times and wins 124 times.

She says: 'The manufacturers must be wrong'.

Do you agree with her? Tick (\checkmark) Yes or No.

Ø	Yes	No	
	Explain your	answer.	

17. Here are six different equations, labelled A to F

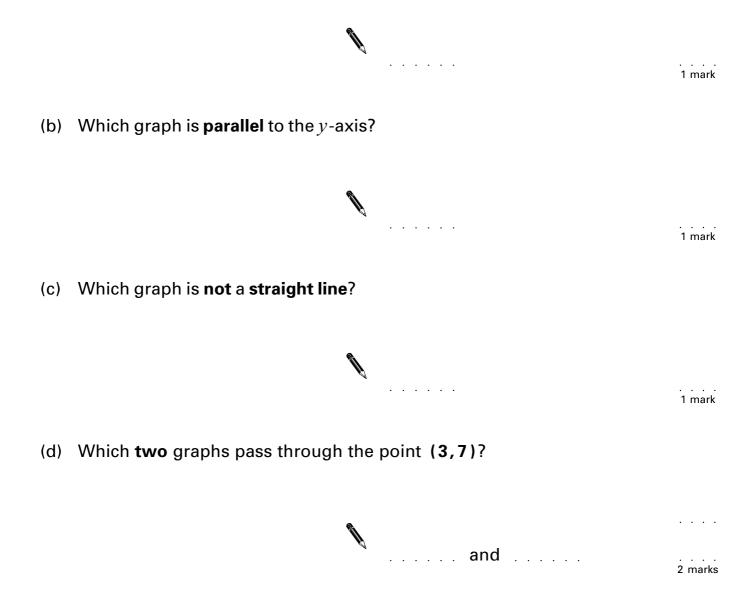
A

$$y = 3x - 4$$
 B
 $y = 4$
 C
 $x = -5$

 D
 $x + y = 10$
 E
 $y = 2x + 1$
 F
 $y = x^2$

Think about the graphs of these equations.

(a) Which graph goes through the point (0, 0)?



(e) The diagram shows the graph of the equation $y = 4 - x^2$

What are the coordinates of the points where the graph of this equation meets the graph of equation **E** ?

