

# MATHEMATICS

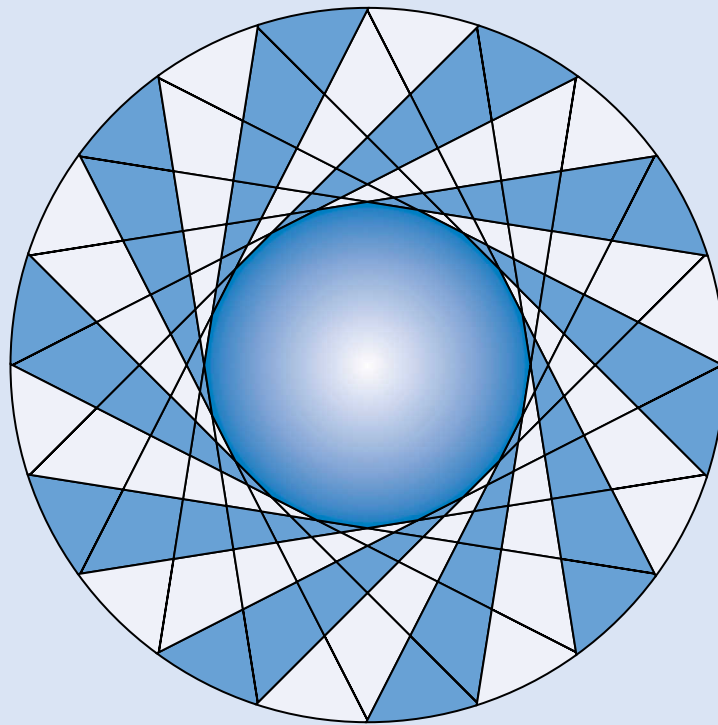
KEY STAGE 2 2001

TEST C

LEVEL  
**6**

CALCULATOR ALLOWED

PAGE	MARKS
3	
5	
7	
9	
11	
12	
<b>TOTAL</b>	



**First Name**

**Last Name**

**School**

# Instructions

You **may** 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:**



Show  
your **method**.  
You may get  
a mark.

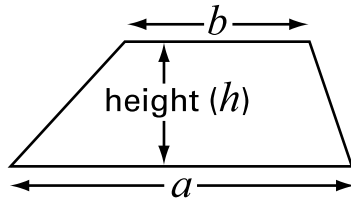


For these questions you may get a mark for showing your method.

# Formulae

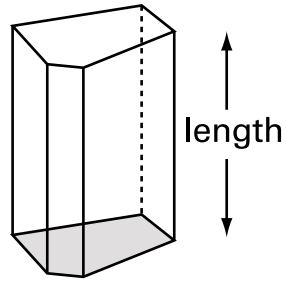
You might need to use these formulae in this test.

## Trapezium



$$\text{Area} = \frac{(a+b)}{2} \times h$$

## Prism



$$\text{Volume} = \text{area of cross-section} \times \text{length}$$

**1**

This number sequence follows the rule

*'subtract 10, then divide by 10'*Write the **two numbers** missing from the sequence.

120

11

0.1

1a

1 mark

1b

1 mark

**2**Write **two decimals, each less than 1,**  
which multiply to make **0.1**

×

=

0.1

2

1 mark

**3**This four digit number is a **square number**.

Write in the missing digits.



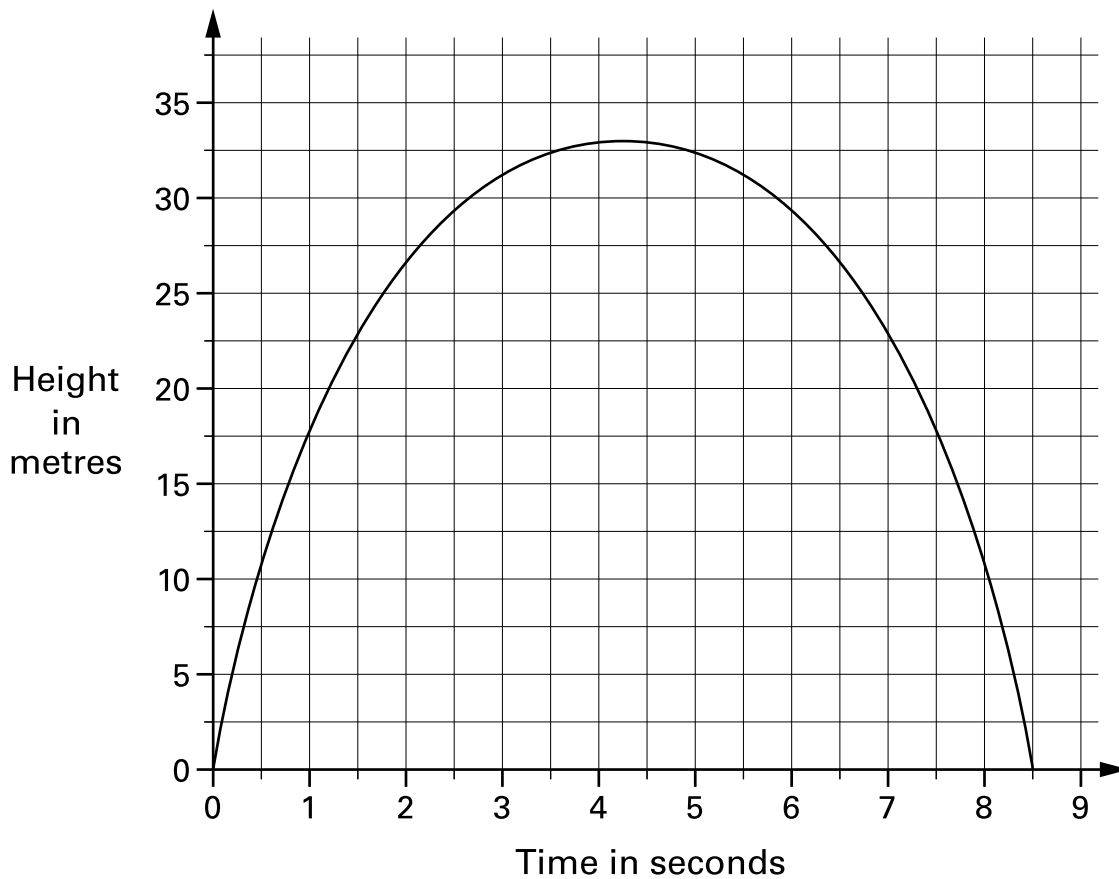
9			9
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3

1 mark

4

This is a graph of a firework rocket, showing its height at different times.



Estimate from the graph for how many seconds the rocket is **more than 20 metres** above the ground.



seconds

4a  
1 mark

Estimate from the graph how many metres the rocket falls in the **last second** of its flight.

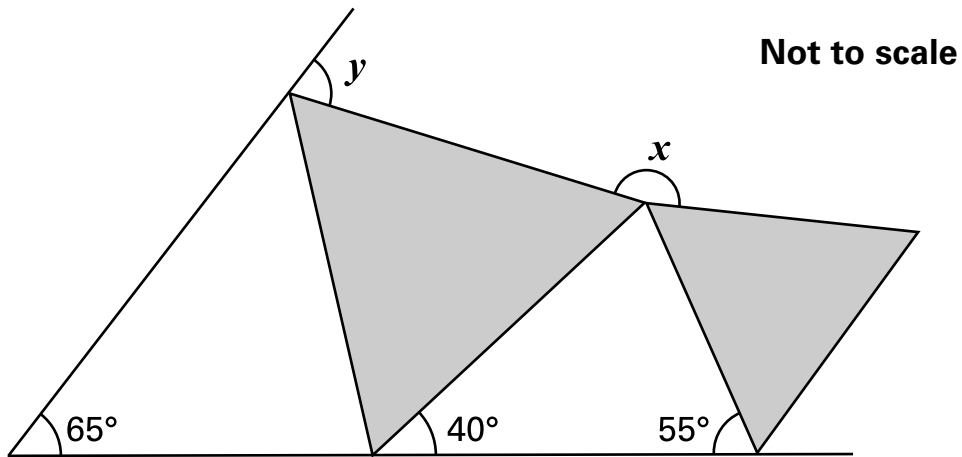


m

4b  
1 mark

5

The diagram shows two shaded **equilateral** triangles.



Calculate the size of the **angle  $x$**  and **angle  $y$** .

Do **not** use a protractor (angle measurer).



$x =$   °

$y =$   °

5a  
1 mark

5b  
1 mark

6

Find the value of  $u$  in this equation.

$$7 + 4u = 70 - 3u$$



Show your **method**.  
You may get a mark.

6  
2 marks



The population of the world is approximately **6200 million** people.

It is increasing by approximately **93 million people** each year.

Use this information to calculate the **percentage increase** in the population over a year.



Show your **method**.  
You may get a mark.

%

7a  
2 marks

Mike says,

***'An increase of 93 million people each year is more than 170 people each minute'.***

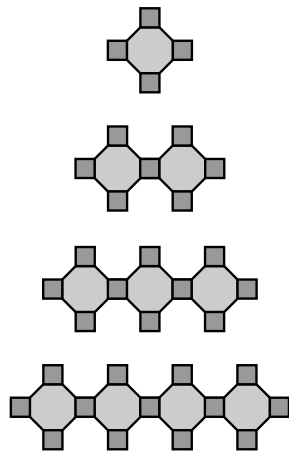
Show that he is correct.



7b  
2 marks

8


Here is a sequence of patterns made from **octagons** and **squares**.



	number of octagons ( <b>n</b> )	number of squares ( <b>q</b> )
1	1	4
2	2	7
3	3	10
4	4	13

The sequence continues.

How many **squares** will there be in the pattern that has **40 octagons**?




Show your **method**.  
You may get a mark.

**q** represents the number of squares.

**n** represents the number of octagons.

What is the rule connecting **q** and **n**?



.....

.....

.....

8a  
2 marks

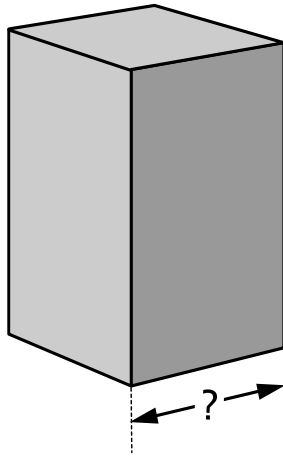
8b  
1 mark

9

A cuboid has a **square base**.

It is **twice as tall** as it is **wide**.

Its volume is **250 cubic centimetres**.



Not actual size

Calculate the **width** of the cuboid.



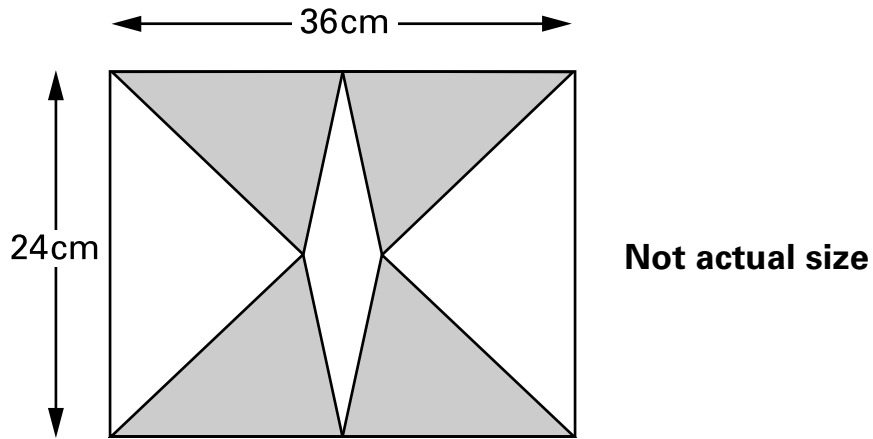
Show your **method**.  
You may get a mark.

cm

9  
2 marks


10

The diagram shows **4 identical shaded triangles** in a rectangle.



The rectangle measures **36 centimetres** by **24 centimetres**.

Calculate the **area** of **one shaded triangle**.



Show your **method**.  
You may get a mark.

$\text{cm}^2$

10  
2 marks

**11**

P stands for a **multiple of 3**

Q stands for a different **multiple of 3**

Tick (✓) each statement according to whether it is **always true, sometimes true or never true.**



The **sum** of P and Q is a **multiple of 6**

The **difference** between P and Q is a **multiple of 3**

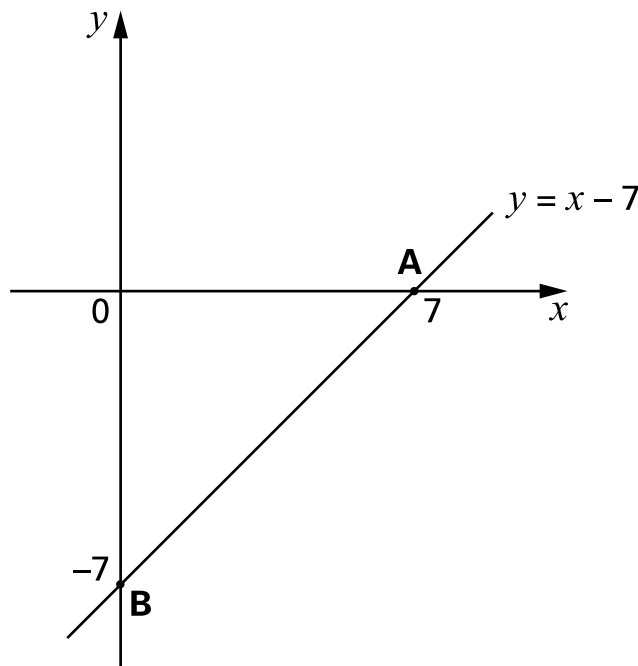
The **product** of P and Q is a **multiple of 9**

always true	sometimes true	never true

11  
2 marks

**12**

The diagram shows the graph of  $y = x - 7$

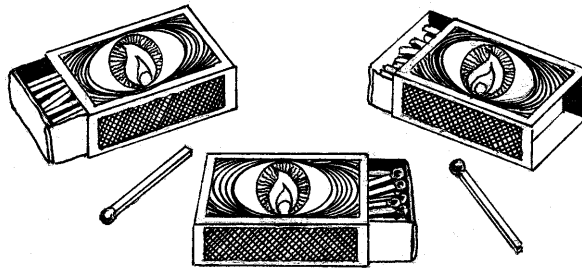


Write the coordinates of one point on the line **between A and B.**



(   ,   )

12  
1 mark



Carol counts the matches in **10** boxes.

She works out that the **mean** number of matches in a box is **51**

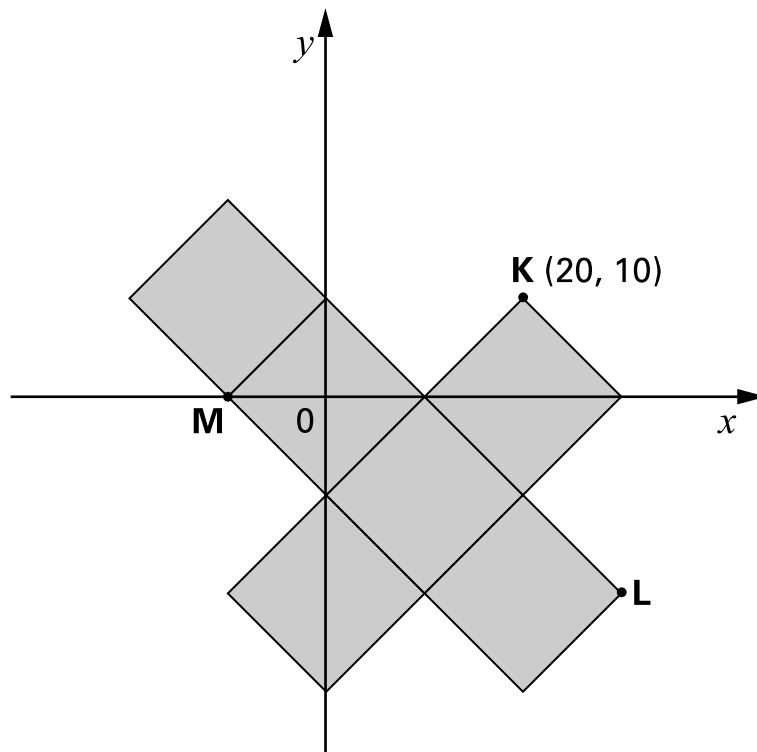
Here are her results for **9** boxes.

Number of matches in a box						
48	49	50	51	52	53	54
	✓	✓	✓	✓		✓
	✓	✓				✓
	✓					

Calculate how many matches are in the **10th** box.



Show  
your **method**.  
You may get  
a mark.

**14**The diagram shows **6 shaded squares**.**K is the point (20, 10)**What are the coordinates of **L** and **M**?

L is

M is

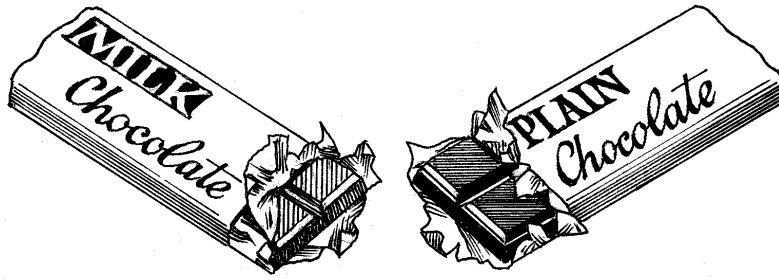
14a

1 mark

14b

1 mark

15



In a survey, the **ratio** of the number of people who preferred **milk chocolate** to those who preferred **plain chocolate** was **5 : 3**

**46 more** people preferred milk chocolate, to plain chocolate.

How many people were in the survey?



Show your **method**.  
You may get a mark.

15  
2 marks

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