

MATHEMATICS

KEY STAGE 2 2002

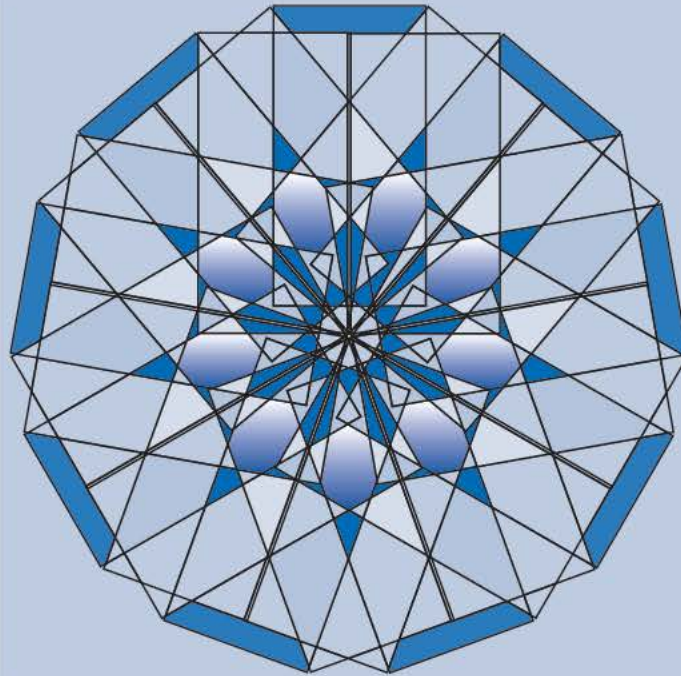
TEST C

LEVEL

6

CALCULATOR ALLOWED

| PAGE | MARKS |
|--------------|-------|
| 5 | |
| 7 | |
| 9 | |
| 11 | |
| 13 | |
| 15 | |
| TOTAL | |



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**.

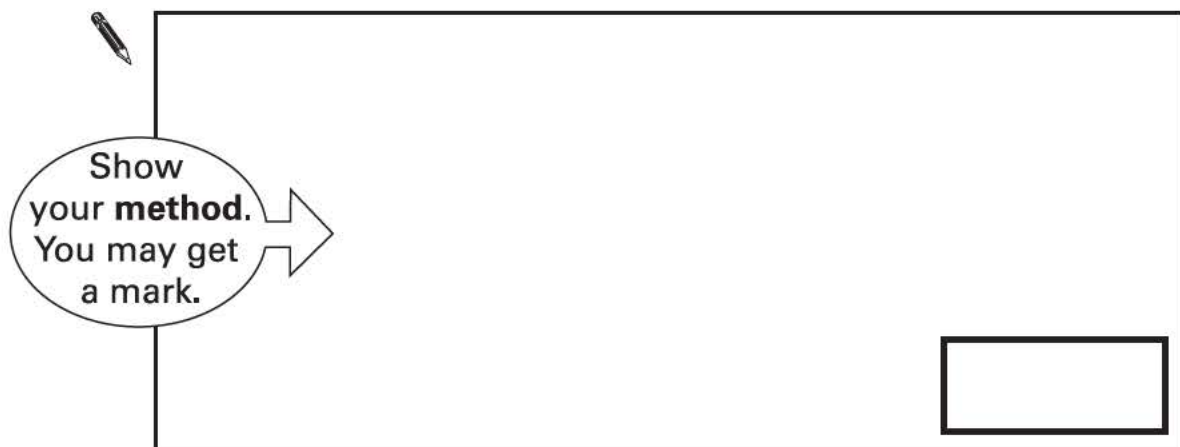
Follow the instructions for each question carefully.



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:

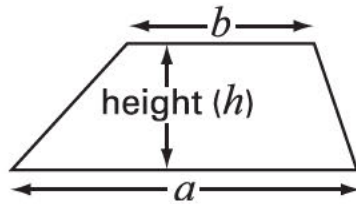


For these questions you may get a mark for showing your method.

Formulae

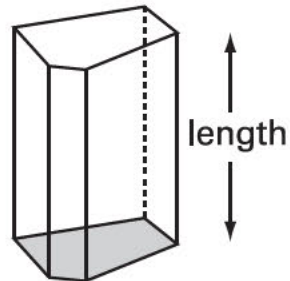
You might need to use these formulae in this test.

Trapezium



$$\text{Area} = \frac{1}{2} (a + b)h$$

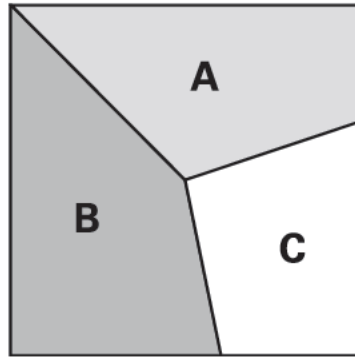
Prism



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

1

This square is divided into three parts.



Part **A** is $\frac{1}{3}$ of the area of the square.

Part **B** is $\frac{2}{5}$ of the area of the square.

What fraction of the area of the square is part **C**?

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



1
2 marks

2

Paulo makes a sequence of numbers.

He chooses a starting number and then subtracts equal amounts each time.

The **third number** in his sequence is **45**

The **tenth number** is **-32**

| | | | | | | | | | | |
|--|--|----|--|--|--|--|--|--|--|-----|
| | | 45 | | | | | | | | -32 |
|--|--|----|--|--|--|--|--|--|--|-----|

What is the **first** number in the sequence?

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

2
2 marks


3

Two numbers are in the **ratio 3 : 2**

One of the numbers is **0.6**

There are two possible answers for the other number.

What are the two possible answers?



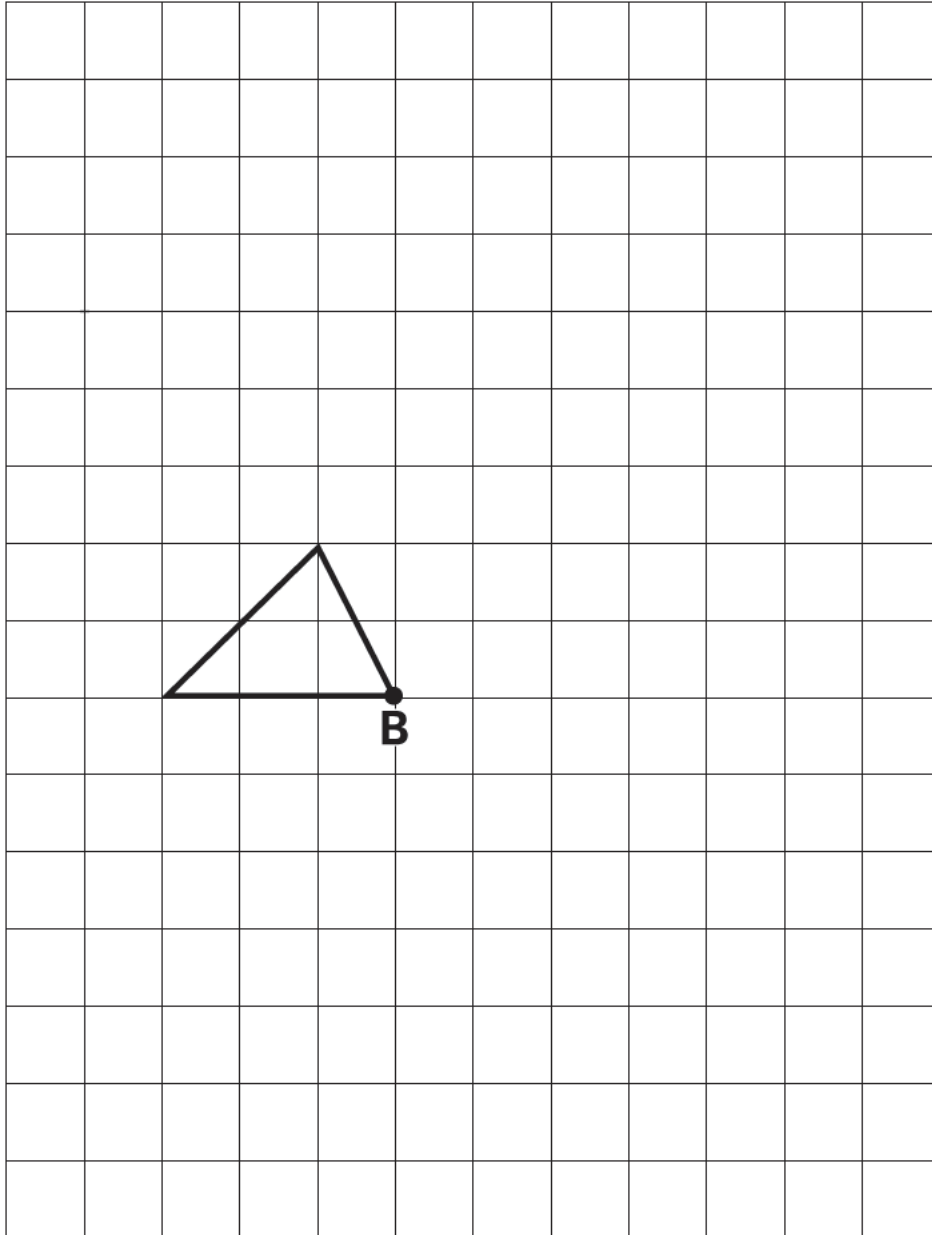
3
2 marks

4

Here is a shape on a square grid.

The shape is rotated **90° clockwise** about point B and enlarged by a **scale factor of 2**

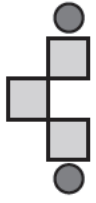
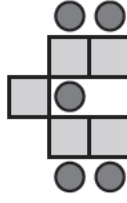
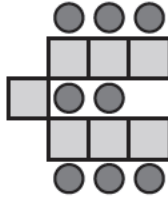
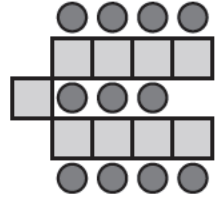
Use a ruler to draw the enlarged shape in its new position.



4
2 marks

5

Here is a sequence of shapes made from squares and circles.

| | | | | |
|-----------------------|---|---|--|---|
| |  |  |  |  |
| shape number (n) | 1 | 2 | 3 | 4 |
| number of circles (c) | 2 | 5 | 8 | 11 |
| number of squares (s) | 3 | 5 | 7 | 9 |

The sequence continues in the same way.

The formula for the **number of circles (c)** in **shape number (n)** is

$$c = 3n - 1$$

Use the formula to work out the **shape number** which has **104 circles**.

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

5a
2 marks

Write the formula for the **number of squares (s)** in **shape number (n)**.

 $s = \dots\dots\dots$

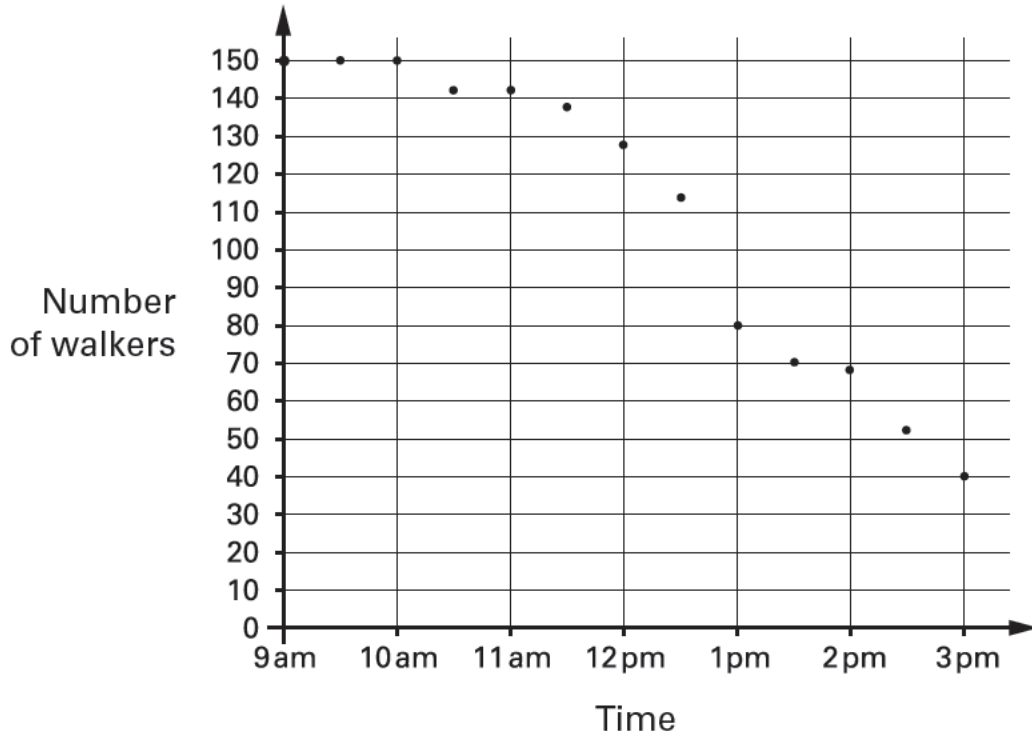
5b
1 mark



6

150 people take part in a walk.

This chart shows the number of people still walking at different times.



Use the chart to estimate the **time** when **two-thirds of the people** are still on the walk.



6a

1 mark

What **percentage** of the people who started are **still on the walk at 3pm**?



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

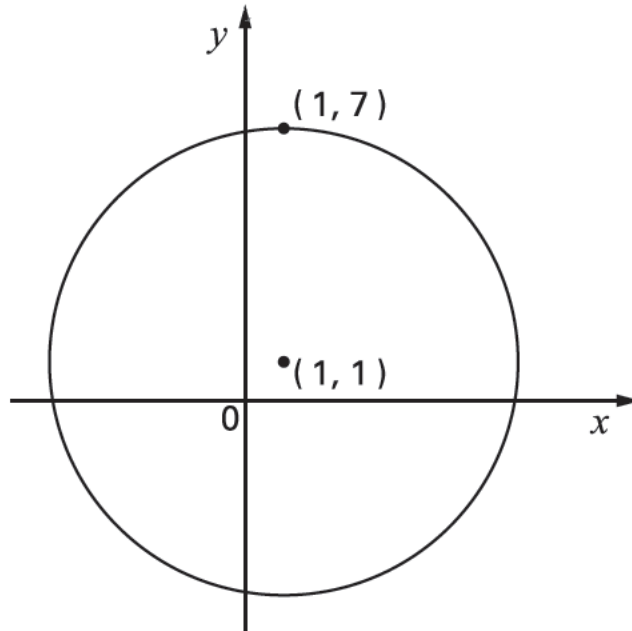
%

6b

2 marks

7

Here is a circle with its **centre** at the point $(1, 1)$
 The point $(1, 7)$ is on the circumference of the circle.



For each of these points, put a tick (\checkmark) to show if it is **inside** the circle, **on** the circle or **outside** the circle.

One has been done for you.

| | inside the circle | on the circle | outside the circle |
|------------|-----------------------------|-------------------------|------------------------------|
| $(3, 7)$ | | | \checkmark |
| $(7, 1)$ | | | |
| $(1, -7)$ | | | |
| $(-2, -2)$ | | | |

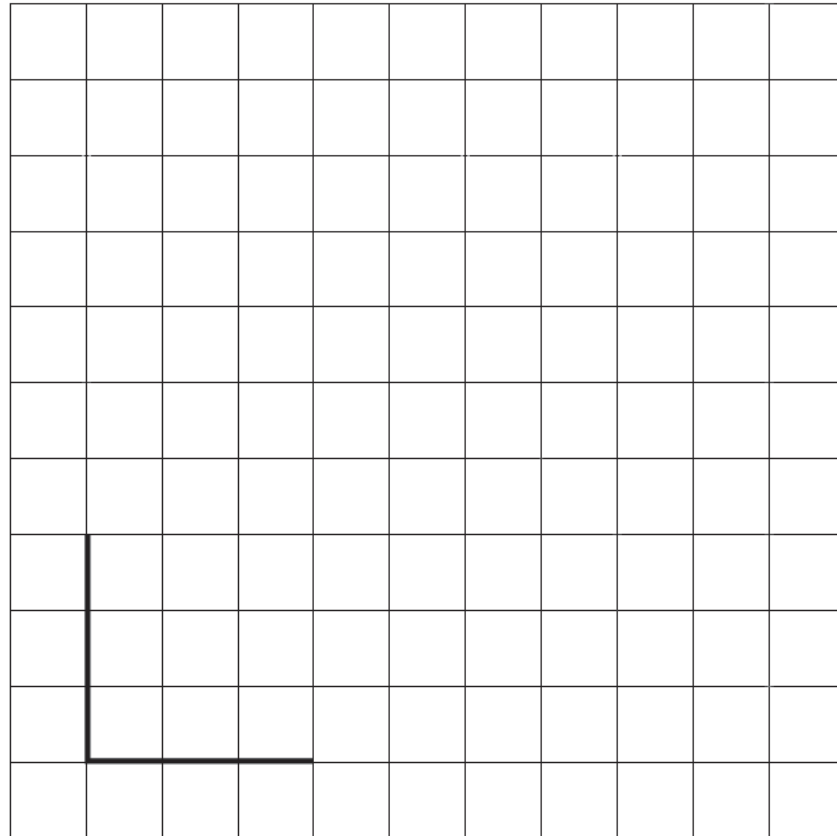
7
2 marks

8

Here is a centimetre grid.

Draw **two** more lines to make a **quadrilateral** with an area of **18cm²**

Use a ruler.



8
1 mark

9

Find the value of t in this equation.

$$33 - 8t = 15$$



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



9
2 marks

10

Circle the two decimals which are
closest in value to each other.



0.9

0.09

0.99

0.1

0.01

10
1 mark

11



In Class 6, **80%** of the children like crisps.

75% of the children **who like crisps** also like chocolate.

In Class 6, what percentage of the children like **both** crisps and chocolate?

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

%

11
2 marks

12

Lili and Julian each start with the **same** number.

Lili works out **half of the number**.

Julian works out **three-quarters of the number**.

The **sum** of their answers is **275**

What was the number they started with?



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

12
2 marks

13

A, B and C stand for three different numbers.

The mean of A and B is 40

The mean of B and C is 35

$$A + B + C = 100$$

Calculate the values of A, B and C.



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

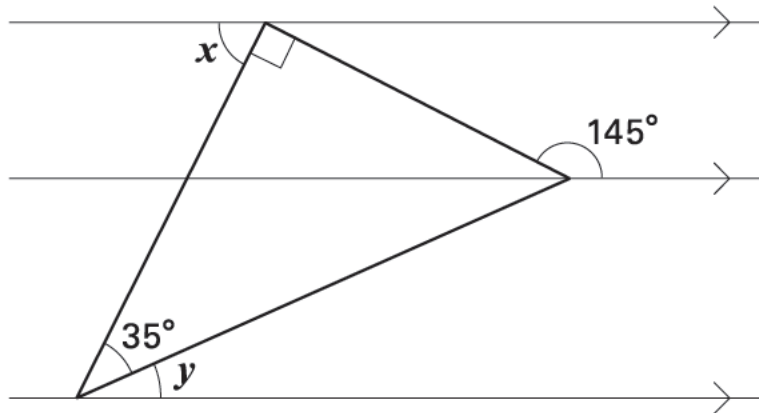
A = B = C =

13
2 marks



14

The diagram shows a right-angled triangle and three parallel lines.



Calculate the size of angle x and angle y

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



$x =$

$y =$

14a
1 mark

14b
1 mark

15

Draw a line from each of the expressions on the left to an equivalent expression on the right.



$$(w + 5) + (w - 7)$$

$$(w + 5) - (w + 7)$$

$$12$$

$$w + 12$$

$$-2$$

$$2w + 12$$

$$w - 2$$

$$2w - 2$$

15a

1 mark

15b

1 mark

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