

2024 national curriculum tests

# Key stage 2

## Mathematics

### Paper 2: reasoning

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



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## Instructions

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

### Questions and answers

You have **40 minutes** to complete this test.

Follow the instructions for each question.

Work as quickly and as carefully as you can.

If you need to do working out, you can use the space around the question.

Do not write over any barcodes.

**Some questions have a method box like this:**

Diagram illustrating a method box. The box is a large grid with a rounded rectangle on the left side containing the text "Show your method". A smaller empty rectangle is positioned in the bottom right corner of the grid.

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

If you cannot do a question, **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**.

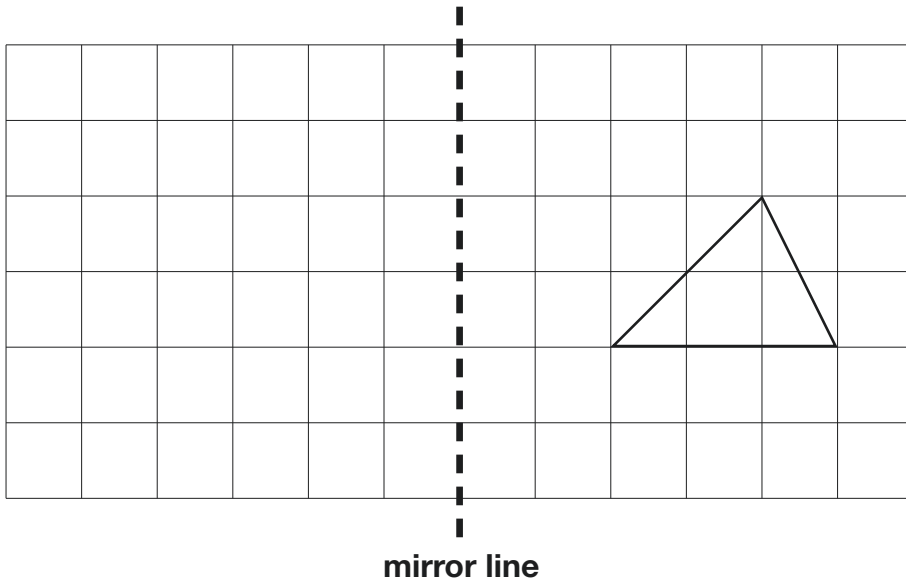
### Marks

The number under each line at the side of the page tells you the number of marks available for each question.



1

Here is a triangle on a grid.



Draw the reflection of the triangle in the mirror line.

Use a ruler.

1 mark



**2**

This table shows the cost of fruit at a school cafeteria.

Fruit	Cost for one
banana	12p
plum	23p
apple	32p
pear	38p

Amir buys two pieces of fruit.

He pays with a £2 coin.

He gets £1.50 change.

Tick the **two** pieces of fruit that Amir buys.

Tick **two**.

banana

plum

apple

pear

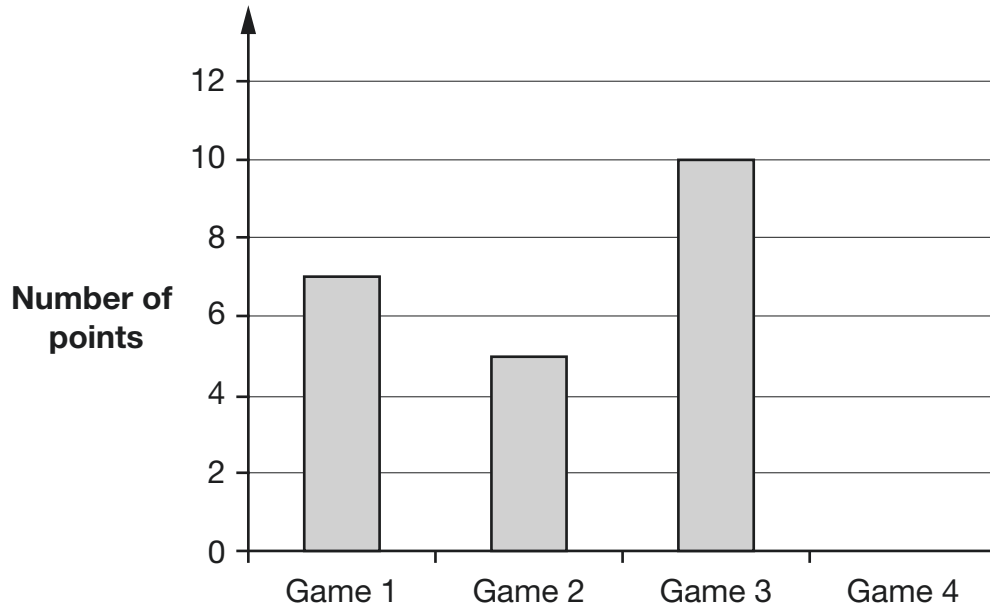
1 mark



3

Layla plays basketball.

This graph shows how many points she scored in her first 3 games.



1 mark

After 4 games, Layla had scored a total of 25 points.

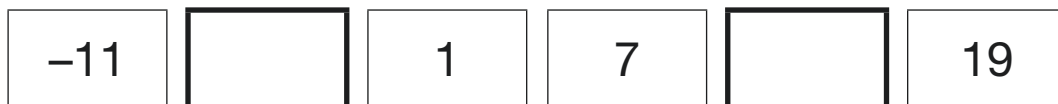
Complete the graph.

Use a ruler.

4

The numbers in this sequence increase by the same amount each time.

Write the missing numbers.



1 mark



5

Write the three missing digits to make this multiplication correct.

$$\begin{array}{r} \square 5 \square \\ \times \quad \quad 3 \\ \hline 7 \square 2 \end{array}$$

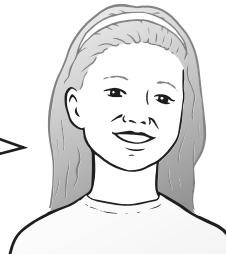
1 mark

6

Olivia is thinking of a number.

My number

- is greater than 236
- is less than 245
- has a 3 in the tens' place
- is an even number



What number is Olivia thinking of?

1 mark



M 0 0 0 7 0 A 0 7 2 4

7

A box holds 40 packets of envelopes.

Each packet holds 25 envelopes.

How many **envelopes** does the box hold?

1 mark

8

Write a **whole number** in each box to make the statements correct.

One has been done for you.

rounded to the nearest **ten** is 20

rounded to the nearest **thousand** is 4,000

rounded to the nearest **ten thousand** is 820,000

1 mark





9

$$4 \div 10$$

$$40 \div 10$$

$$4 \div 100$$

$$40 \div 100$$

Two of these calculations have the same answer.

Write this answer as a **decimal**.

1 mark



**10**Circle the two **prime** numbers that have a difference of 2

15      17      19      21      23      25

1 mark**11**

This table shows the number of children and adults at a childcare centre.

Complete the table to make it correct.

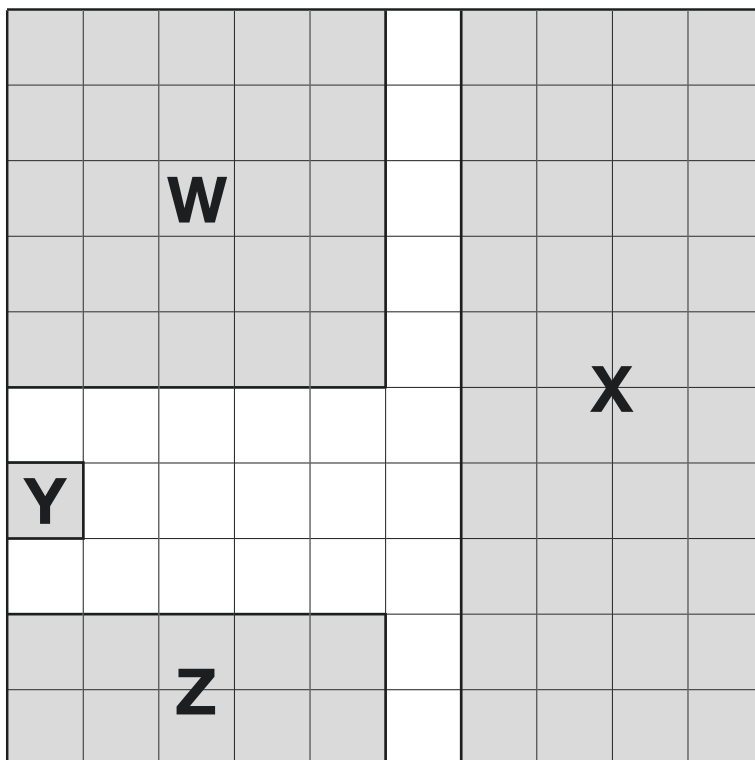
The first row has been done for you.

Age in years	Number of children	Number of adults	Number of children per adult
1 and under	12	4	3
2 or 3	20		4
4 or 5		3	8

1 mark

12

Shapes **W**, **X**, **Y** and **Z** cover different fractions of this 10 by 10 square.



Match each shape to the correct fraction.

Shape **W**

$$\frac{1}{100}$$

Shape **X**

$$\frac{1}{4}$$

Shape **Y**

$$\frac{2}{5}$$

Shape **Z**

$$\frac{1}{10}$$

1 mark



13

Match the name of each 3-D shape to its number of vertices.

cube

9

square-based pyramid

8

triangular-based prism

6

octagonal-based pyramid

5

1 mark

14

A class votes for a captain.

Three-quarters of the class vote for Sam.

The remaining 7 pupils vote for Alex.

How many pupils are in the class?

1 mark



15

Write the missing number to make this **multiplication** correct.

$$3.207 \times 100 = \boxed{\phantom{000}} \times 10$$

1 mark

16

Here is a number.

9,658,214

Tick the statements that are **true**.

The digit 5 represents 50,000

The value of the digit 9 is nine hundred thousands.

The digit 6 represents 6 millions.

The value of the digit 2 is twenty tens.

2 marks





18

Draw an arrow ( $\uparrow$ ) on the scale below to show **1350 grams**.



1 mark

19

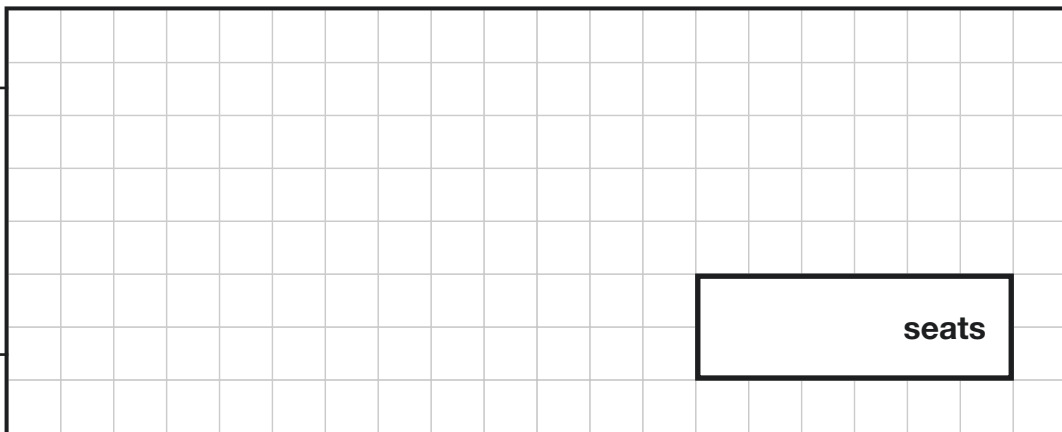
A hall has 1,250 seats.

At 7 pm, 880 seats are filled.

At 8 pm, there are 40 empty seats.

How many seats were filled between 7 pm and 8 pm?

Show  
your  
method



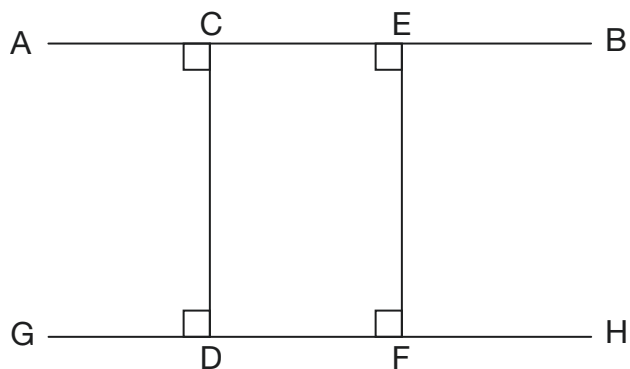
2 marks







21



Tick **all** the correct statements.

AB is parallel to CD

GH is parallel to AB

CD is perpendicular to GH

EF is perpendicular to CD

1 mark



This table shows the distance that five friends travel to school each day.

Name	Distance (km)
Amina	1.8
William	2.4
Layla	3.2
Chen	1.6
Dev	4.5

What is the **mean** distance they travel to school each day?

Show  
your  
method

km

2 marks



23

Mrs Mills has **940** seeds to plant into trays.

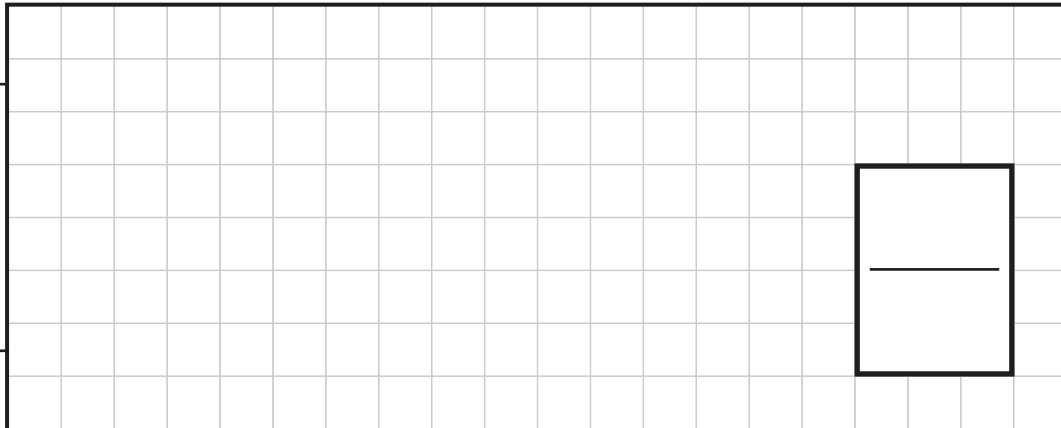
She plants **12** seeds in each tray.

The last tray is not full.



What **fraction** of the last tray is filled?

Show  
your  
method



2 marks



24

Here are four numbers.

40

60

64

100

Use each number **once** to complete these statements.

is a square number.

is a cube number.

is a common multiple of **4** and **5**

is a common factor of **80** and **120**

2 marks



25

Write the missing numbers so that  $3 \times b - a = 2$

$a$	$b$
	2
13	

2 marks

26

Here are 3 translations on a coordinate grid.

Tick the translations that are **four units to the left**.

from (0, 2) to (4, 2)

from (6, 8) to (2, 8)

from (-3, 5) to (-7, 5)

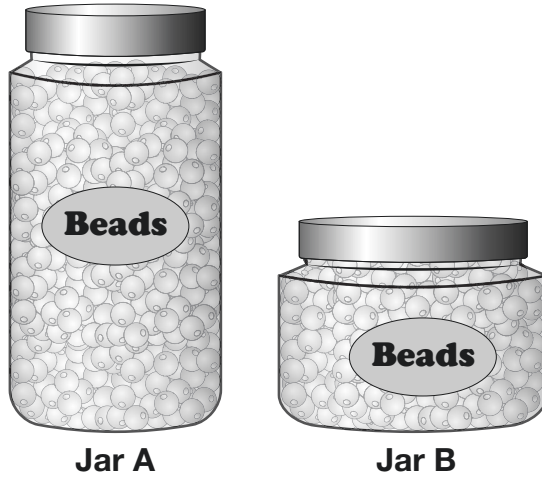
1 mark



27

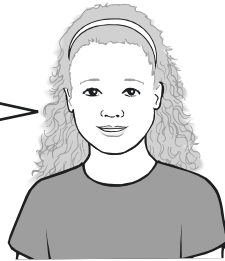
Olivia has two jars of beads.

The number of beads in Jar A is **double** the number of beads in Jar B.



Olivia says,

25% of the number of beads in Jar A is the same as 50% of the number of beads in Jar B.



Explain why Olivia is correct.

A large, empty, cloud-shaped box for writing an explanation.

1 mark



**[END OF TEST]**

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2024 key stage 2 mathematics

Paper 2: reasoning

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