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KEY STAGE

**3**

HIGHER TIERS

TEST B

Mathematics tests

# Mental mathematics

Test B transcript

This booklet contains a transcript of the key stage 3 mental mathematics test B. It should be used **ONLY** in cases of CD failure or for specific special arrangements outlined in the 2009 *Key stage 3 test administrators' guide*.

**2009**

# Notes for use of transcript

## Instructions

In the event of CD failure, the test administrator should follow the instructions on pages 2 and 5.

1. Pupils should have only pens or pencils. They should not have rubbers, rulers, calculators or any other mathematical equipment. Access to paper for working out answers is **not allowed**.
2. Ensure that each pupil has an answer sheet. Tell the pupils to write their name and school in the box at the top of the answer sheet.
3. Ensure the pupils understand that:
  - they must complete the test on their own without copying or discussing questions with other pupils
  - they will be told how long they have to answer each question and that the time given will increase from 5, to 10, to 15 seconds as the test progresses through the three sections
  - for some of the questions, the information they will need is included in or beside the answer box on the pupil answer sheet
  - they are not allowed to use a calculator or any other mathematical equipment
  - if they want to change their answer, they should put a cross through their first answer. They are not allowed to rub out any answers
  - they should answer as many questions as they can. If they find a question too difficult, they should put a cross in the answer box and wait for the next question
  - they should not write in the white boxes in the blue margins
  - they will not be allowed to ask any questions once the test has started.
4. The test administrator must have access to a clock or watch that measures accurately in seconds.

Instructions continued on page 5

## Higher tiers test B questions

'Now we are ready to start the test.'

For the first group of questions you will have 5 seconds to work out each answer and write it down.'

- 1 Look at the units of length on your answer sheet.  
Put a ring round the one that is best used for the distance between two towns.
- 2 Look at the expression.  
Write it as simply as possible.
- 3 Write the number that is three less than six thousand.
- 4 Multiply seven point eight by two.
- 5 What number is three cubed?
- 6 The probability that I will have toast for breakfast is nought point three.  
What is the probability that I will not have toast for breakfast?
- 7 Write nought point nought nine as a fraction.
- 8 Multiply minus six by minus eight.

'For the next group of questions you will have 10 seconds to work out each answer and write it down.'

- 9 A carton of orange drink costs twenty-five pence.  
How many cartons can I buy for two pounds fifty?
- 10 I was delayed in traffic from quarter to six to twenty past six one evening.  
For how many minutes was I delayed?
- 11 Look at the numbers on your answer sheet. Add them.
- 12 Pupils in a class were asked if they would prefer an apple or a banana.  
The pictogram shows the results. How many pupils were in the class?
- 13 At ten pm, the temperature was eight degrees Celsius.  
By midnight the temperature had dropped by ten degrees.  
What was the temperature at midnight?
- 14 Look at the rectangle drawn on a square grid.  
What percentage of the rectangle is shaded?
- 15 Put a cross on the grid to show the point with coordinates minus two, one.

'Now turn over your answer sheet.'

## Pupil answer sheet

Key stage 3 mathematics 2009  
Mental mathematics Test B

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

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

School \_\_\_\_\_

Total marks

Time: 5 seconds continued

7	<input type="text"/>	0.09	<input type="text"/>
8	<input type="text"/>	<input type="text"/>	<input type="text"/>

Time: 10 seconds

9	<input type="text"/>	25p	£2.50	<input type="text"/>
10	<input type="text"/>	Quarter to six	<input type="text"/>	minutes

Practice question

<input type="text"/>	<input type="text"/>	39
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Time: 5 seconds

1	millimetres	kilometres	<input type="text"/>
	metres	inches	<input type="text"/>
2	<input type="text"/>	$8y + 3y$	<input type="text"/>
3	<input type="text"/>	6000	<input type="text"/>
4	<input type="text"/>	7.8	<input type="text"/>
5	<input type="text"/>	<input type="text"/>	<input type="text"/>
6	<input type="text"/>	0.3	<input type="text"/>

Key: = 3 pupils

Apple				<input type="text"/>
Banana				pupils

13	<input type="text"/>	°C	8°C	<input type="text"/>
----	----------------------	----	-----	----------------------

14	<input type="text"/>	%		<input type="text"/>
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15		<input type="text"/>
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- 16 A teacher asked pupils in a class 'Do you have a pet?' The percentage bar chart shows the results. Estimate the percentage of pupils who said no.
- 17 A regular pentagon has a side length of four centimetres. What is its perimeter?
- 18 Look at the isosceles triangle. What is the size of angle  $x$ ?
- 19 On a sponsored walk, I walked four miles in each hour. How long did it take me to walk eighteen miles?
- 20 The prices of meals in a canteen are increased by five per cent. What is the new price if the old price was two pounds?
- 21 Look at the equation. What is the value of  $x$  when  $y$  is twenty?
- 22 A rectangular photograph measures eight centimetres by ten centimetres. I enlarge the photograph so that the shorter side is twelve centimetres. What is the length of the longer side?
- 23 Look at the expression. Multiply out the brackets.

**'For the next group of questions you will have 15 seconds to work out each answer and write it down.'**

- 24 I am thinking of two numbers that add to twelve. One number is two more than the other. What are my two numbers?
- 25 The scale of a map is one centimetre to two kilometres. On the map two places are seven and a half centimetres apart. What is the actual distance between the two places?
- 26 One hundred pupils study French, German or both languages. Sixty-five pupils study French and eighty-three pupils study German. How many study both languages?
- 27 Look at the expression. When  $b$  is seven, work out the value of the expression.
- 28 The table shows the number of children in ten families. How many children are there altogether?
- 29 The angles in a triangle are in the ratio two to three to four. What are the sizes of the three angles?
- 30 The diagram shows a right-angled triangle. Which value under the triangle shows the length of the hypotenuse? Put a ring round the correct value.

**'Put your pens down. The test is finished.'**

**Time: 10 seconds continued**

16 

No	Yes
----	-----

100%  
0% % 16

17 

cm	4cm
----	-----

17

18 

°	_____
---	-------

18

19 

hours	18
-------	----

19

20 

£	5%	£2
---	----	----

20

21 

_____	$y = 3x - 7$
-------	--------------

21

22 

8cm	10cm	cm
-----	------	----

22

23 

_____	$3y(5 - y)$
-------	-------------

23

**Time: 15 seconds**

24 \_\_\_\_\_ and \_\_\_\_\_ 24

25 

1cm : 2km	$7\frac{1}{2}$ cm
-----------	-------------------

 km 25

26 

65	83
----	----

26

27 

_____	$\frac{(3 + b)^2}{5}$
-------	-----------------------

27

28 

Number of children	Frequency
0	1
1	1
2	4
3	3
4	1

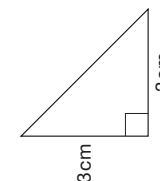
 children 28

29 

2 : 3 : 4
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29

30 

	$\sqrt{6}$	$\sqrt{9}$	$\sqrt{12}$
	$\sqrt{18}$	$\sqrt{27}$	

30

5. Read out the following script, **using exactly these words**:

*Listen carefully to the instructions I am going to give you. After I have finished reading them, there will be time for you to ask any questions you might have. However, you will not be able to ask any questions once the test has begun.*

*I will start by reading a practice question. Then I am going to ask you 30 questions for the test.*

*On your sheet there is an answer box for each question, where you should write the answer to the question and nothing else. You should work out the answer to each question in your head, but you may jot things down outside the answer box if this helps you. Do not try to write down your calculations because this will waste time and you may miss the next question. For some of the questions, important information is already written down for you on the sheet.*

*I will read out each question twice. Listen carefully both times. You will then have time to work out your answer. If you cannot work out an answer, put a cross in the answer box. If you make a mistake, cross out the wrong answer and write the correct answer next to it. There are some easy and some harder questions so don't be put off if you cannot answer a question.*

6. Stop and answer any questions that the pupils may have.

7. Read out the following:

*Here is the practice question to show you what to do.*

*I will read the question twice, and you will have 5 seconds to work out the answer and write it in the answer box.*

*Double the number on your answer sheet.*

Repeat the question.

*Double the number on your answer sheet.*

Wait 5 seconds (measured accurately using a clock or watch), then read out the following:

*Now put down your pen or pencil.*

8. Ensure that the pupils have correctly placed their answers to the practice question on their answer sheets. Remind the pupils that, for some questions, information is provided in or beside the answer box. When they are ready to begin the test, tell the pupils that you will not be able to answer any further questions, or interrupt the test, once you have started reading the questions.
9. The questions are given on pages 3–4 of this booklet. The questions must be read out exactly as written. Start by stating the question number, then read each question twice before leaving the 5, 10 or 15 second response time. **These timings must be strictly adhered to.**
10. At the end of the test, tell the pupils to put down their pens or pencils, then collect their answer sheets.

