

Ma

KEY STAGE

3

HIGHER TIERS  
TEST A

Mathematics tests

# Mental mathematics

Test A transcript

## CONFIDENTIAL MATERIAL ENCLOSED

THIS BOOKLET CONTAINS CONFIDENTIAL TEST QUESTIONS –  
IT MUST BE KEPT SECURE. IT SHOULD NOT BE OPENED UNTIL  
THE MENTAL MATHEMATICS TEST IS DUE TO START ON  
**TUESDAY 6 MAY 2008.**

EARLY OPENING, UP TO ONE HOUR BEFORE THE TEST  
STARTS, IS PERMISSIBLE ONLY IF PAPERS ARE NEEDED FOR  
ADMINISTRATIVE PURPOSES.

This booklet contains a transcript of the key stage 3 mental mathematics test A. It should be used **ONLY** in cases of CD failure or for specific special arrangements outlined in the 2008 *Assessment and reporting arrangements* booklet for key stage 3.

2008

# 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 A 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	How many sixes are there in forty-two?
2	Look at the numbers on your answer sheet. Write down the number that is the mode.
3	Look at the expression. Write it as simply as possible.
4	Subtract nought point one from four.
5	What number is eight more than minus two?
6	Look at the number on your answer sheet. Round it to one decimal place.
7	What is the gradient of the line with equation $y$ equals three $x$ plus two?

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

8	There are three hundred people at a concert. One hundred and fifty-five of them are male. How many are female?
9	Look at the shaded triangle drawn on a centimetre square grid. What is the area of the triangle?
10	Write down the multiple of twelve between forty and fifty.
11	Look at the triangle. Work out the size of angle $p$ .
12	Look at the equation on your answer sheet. When $b$ is three, what is the value of $a$ ?
13	Twenty per cent of a number is six. What is the number?
14	I travel at a constant speed of forty miles per hour. How far do I travel in two and a half hours?
15	On average I take twenty breaths in one minute. How many breaths is that in one hour?
16	Look at the expression. Multiply out the brackets.
17	Look at the number on your answer sheet. Halve it.

'Now turn over your answer sheet.'

## Pupil answer sheet

Key stage 3 mathematics 2008  
Mental mathematics Test A

First name \_\_\_\_\_  
Last name \_\_\_\_\_  
School \_\_\_\_\_

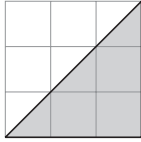
Total marks

Time: 5 seconds continued

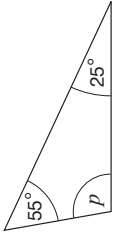
7	$y = 3x + 2$	7
---	--------------	---

Time: 10 seconds

8	300	8
---	-----	---

9		cm <sup>2</sup>	9
---	---	-----------------	---

10	40 50	10
----	-------	----

11		11
----	---	----

12	$a = 5b - 4$	12
----	--------------	----

13	20%	6	13
----	-----	---	----

14	miles	40mph	14
----	-------	-------	----

15		20	15
----	--	----	----

16		$3(a - 5)$	16
----	--	------------	----

17		5.7	17
----	--	-----	----

Practice question

	99	
--	----	--

Time: 5 seconds

1	42	1
---	----	---

2	8 4 7	2
	4 9	

3	$4b + 5b$	3
---	-----------	---

4	0.1 4	4
---	-------	---

5	-2	5
---	----	---

6	4.875	6
---	-------	---

- 18 In a bag, there are only red, green and blue balls. Complete the table to show the probability of taking a blue ball.
- 19 In a sale, the price of a notebook is decreased by ten per cent. What is the new price if the old price was one pound twenty?
- 20 Look at the expression. Write down the value of the expression when  $m$  is six.

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

- 21 One of the shapes on your answer sheet is the net of a cuboid. Put a ring round the correct shape.
- 22 Twenty multiplied by thirty-eight is seven hundred and sixty. What is twenty-one multiplied by thirty-eight?
- 23 Look at the square grid. Shade one more square to give a shape with rotation symmetry of order two.
- 24 Thirty-two people were asked if they travelled to work by bus one morning. The pie chart shows the results. How many people said yes?
- 25 Look at the cuboid. It has a volume of one hundred cubic centimetres. Work out length  $a$ .
- 26 The frequency table shows the number of televisions owned by thirty families. Altogether how many televisions did they own?
- 27 A pyramid has five faces. How many sides does the base of the pyramid have?
- 28 Look at the numbers on your answer sheet. Add them.
- 29 Look at the rhombus. Work out its area.
- 30 Eight squared is the same as two to the power what?

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

Time: 10 seconds continued		Time: 15 seconds continued											
18	<table border="1"> <thead> <tr> <th>Colour</th> <th>Probability</th> </tr> </thead> <tbody> <tr> <td>red</td> <td>0.4</td> </tr> <tr> <td>green</td> <td>0.3</td> </tr> <tr> <td>blue</td> <td></td> </tr> </tbody> </table>	Colour	Probability	red	0.4	green	0.3	blue		25			
Colour	Probability												
red	0.4												
green	0.3												
blue													
19	£                      £1.20	26	<table border="1"> <thead> <tr> <th>Televisions</th> <th>Frequency</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>2</td> </tr> <tr> <td>1</td> <td>10</td> </tr> <tr> <td>2</td> <td>10</td> </tr> <tr> <td>3</td> <td>8</td> </tr> </tbody> </table>	Televisions	Frequency	0	2	1	10	2	10	3	8
Televisions	Frequency												
0	2												
1	10												
2	10												
3	8												
20	$m^3$ $m$	27	5 faces										
Time: 15 seconds		28	$2\frac{3}{4}$ 0.3										
21		29											
22	$20 \times 38 = 760$ $21 \times 38 =$ <input type="text"/>	30	$8^2$										
23													
24													
	people												

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.*

*Add ten to the number on your answer sheet.*

Repeat the question.

*Add ten to 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.



# National Assessment Agency

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