

# Ma

KEY STAGE  
**3**

HIGHER TIERS  
TEST B

# 2006

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 Thursday 4 May 2006. Early opening, up to one hour before the test starts, is permissible only if papers are needed for administrative purposes.

## 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 audiotape or CD failure or for specific special arrangements outlined in the 2006 *Assessment and reporting arrangements* booklet for key stage 3.

# 2006



# Notes for use of transcript

## Instructions

In the event of an audiotape or 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 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 | A teacher divides a class of thirty pupils into six equal groups.<br>How many pupils are in each group?                                    |
| 2 | Write eighty-eight thousand in figures.  |
| 3 | Write the number that is halfway between a half and one.   |
| 4 | What is the area of a rectangle with a width of six centimetres and a length of seven centimetres?   |
| 5 | Ninety-seven per cent of the Earth's water is salt water. The rest is fresh water.<br>What percentage of the Earth's water is fresh water? |
| 6 | Divide twenty-four by minus six.   |
| 7 | To the nearest metre the height of a building is twelve metres.<br>What is the least value the height of the building could be?            |

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

|    |   |
|----|---|
| 8  | A teacher asked some pupils which flavour drink they preferred.<br>The bar chart shows the results.<br>Twenty pupils said orange. About how many said lime?               |
| 9  | A lesson starts at two forty-five and finishes at three twenty.<br>How long is the lesson in minutes?   |
| 10 | Look at the triangle on the grid. Write the coordinates of the point marked A.  |
| 11 | Look at the diagram. Work out the size of angle $x$ .   |
| 12 | Look at the expression on your answer sheet. Write it as simply as possible.  |
| 13 | Look at the numbers on your answer sheet. What is their mean?   |
| 14 | A sunflower is one hundred and fifty centimetres tall.<br>How tall will it be if its height increases by ten per cent?  |
| 15 | There are thirty cubes in a bag. I am going to take out one cube at random.<br>The probability that it will be blue is two-fifths.<br>How many blue cubes are in the bag? |

'Now turn over your answer sheet.'

## Pupil answer sheet

Time: 10 seconds

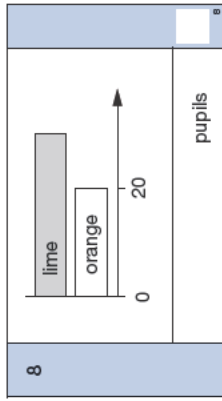
Key stage 3 mathematics 2006  
Mental mathematics Test B

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

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

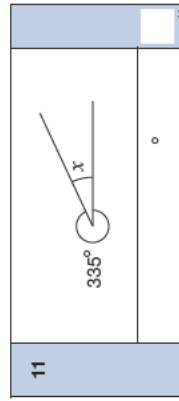
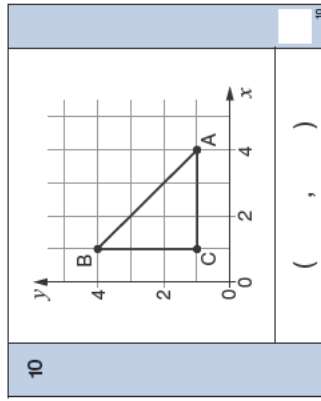
School \_\_\_\_\_

Total marks



9

|         |      |      |
|---------|------|------|
| minutes | 2:45 | 3:20 |
|---------|------|------|



12

|                     |
|---------------------|
| $5k + 2m + 3m + 4k$ |
|---------------------|

13

|    |    |    |    |
|----|----|----|----|
| 22 | 18 | 10 | 30 |
|----|----|----|----|

14

|    |       |     |
|----|-------|-----|
| cm | 150cm | 10% |
|----|-------|-----|

15

|  |    |               |
|--|----|---------------|
|  | 30 | $\frac{2}{5}$ |
|--|----|---------------|

Practice question

|  |    |
|--|----|
|  | 37 |
|--|----|

Time: 5 seconds

1

|  |    |
|--|----|
|  | 30 |
|--|----|

2

|  |  |
|--|--|
|  |  |
|--|--|

3

|               |   |
|---------------|---|
| $\frac{1}{2}$ | 1 |
|---------------|---|

4

|               |  |
|---------------|--|
| $\text{cm}^2$ |  |
|---------------|--|

5

|   |     |
|---|-----|
| % | 97% |
|---|-----|

6

|  |    |
|--|----|
|  | -6 |
|--|----|

7

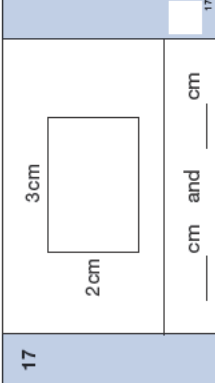
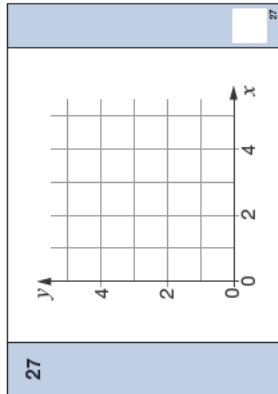
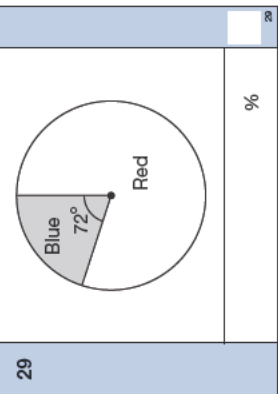
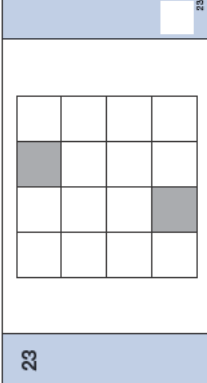
|   |  |
|---|--|
| m |  |
|---|--|

|    |   |
|----|---|
| 16 | The ratio of boys to girls in a class is three to five. There are twelve boys. How many girls are there?  |
| 17 | The rectangle on your answer sheet has been enlarged by a scale factor of two. Write down the dimensions of the rectangle before the enlargement. |
| 18 | Look at the expression on your answer sheet. What is the value of this expression when $y$ is four?   |
| 19 | A 3-D shape has exactly six faces. All six faces are rectangles. What is the name of the 3-D shape?   |
| 20 | From three-quarters, subtract nought point two.   |
| 21 | A car travelled two kilometres in five minutes. What was the car's average speed in kilometres per hour?  |

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

|    |  |
|----|--|
| 22 | Write a multiple of nine that is bigger than seventy and smaller than eighty.  |
| 23 | Look at the pattern on the square grid. Shade two more squares so that the grid has two lines of symmetry.   |
| 24 | Your answer sheet shows the answer to seven multiplied by fifty-eight. Use this information to help you work out the answer to three and a half multiplied by fifty-eight. |
| 25 | Forty-four people paid twenty-five pence each to go into a book sale. How much money is that altogether?   |
| 26 | In a box of pens, one half are black, one sixth are red and the rest are blue. What fraction of the pens is blue?  |
| 27 | On the grid, sketch the straight line with equation $y$ equals $x$ plus two.   |
| 28 | What is the square root of nine twenty-fifths?   |
| 29 | Some people were asked which colour car they preferred. The pie chart shows the results. What percentage of the people said blue?  |
| 30 | $m$ squared equals one hundred. Write down the two possible values of $m$ plus fifteen.  |

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

|                            |   |                            |  |
|----------------------------|---|----------------------------|--|
| Time: 10 seconds continued |   | Time: 15 seconds continued |  |
| 16                         | <input type="text"/> 3 : 5 <input type="text"/>   | 24                         | $7 \times 58 = 406$<br>$3\frac{1}{2} \times 58 =$ <input type="text"/>   |
| 17                         |  <input type="text"/> cm and <input type="text"/> cm | 25                         | £ <input type="text"/> 44 25p <input type="text"/>   |
| 18                         | <input type="text"/> $\frac{1}{2}y^2$ <input type="text"/>  | 26                         | <input type="text"/> $1\frac{1}{2}$ <input type="text"/> $\frac{1}{6}$ <input type="text"/>                                    |
| 19                         | <input type="text"/>  | 27                         |  <input type="text"/>                         |
| 20                         | <input type="text"/> $\frac{3}{4}$ 0.2 <input type="text"/>   | 28                         | <input type="text"/> $\sqrt{\frac{9}{25}}$ <input type="text"/>  |
| 21                         | <input type="text"/> km/h <input type="text"/> $\frac{2\text{ km}}{5\text{ minutes}}$ <input type="text"/>                            | 29                         |  <input type="text"/> % <input type="text"/> |
| 22                         | <input type="text"/> 70 80 <input type="text"/>   | 30                         | $m^2 = 100$<br>$m + 15$<br><input type="text"/> and <input type="text"/>   |
| 23                         |  <input type="text"/>                              |                            |  |

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

*Listen carefully to the instructions I am going to give you. When I have finished reading them, I will answer any questions. 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.

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