



Department  
for Education

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## NUMERACY PROFESSIONAL SKILLS TEST PRACTICE TEST 4

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First name

Surname

Date of test  /  /

This non-interactive practice material is intended to help you to practise answering questions and become familiar with the format of the paper-based versions of the Skills Tests.

In your actual paper-based test you will be provided with a guidance sheet and instructions for each section before you start the test. You will be able to refer to these throughout the test. Similar guidance is included below for your reference.

If you will be taking your actual test on computer, you are recommended to practise using the on screen practice tests.

### **Instructions**

For the actual test, you will be provided with blank paper which you can use to record any working out.

The test contains two sections: mental arithmetic questions and written data and arithmetic questions. The practice test is designed to help you practise answering questions and become familiar with the format of the test. The questions are similar, but not identical, in structure to questions in the actual test.

A mark scheme is included at the end of the test which shows the correct answer for each question. At the end of this document there is guidance on how to answer each question in the test; for your reference during or after the test.

### ***Mental Arithmetic Questions***

The first section contains one practice question and 12 mental arithmetic questions.

- The first question is a practice question which will not contribute to your overall mark. All other questions are worth one mark each.
- You are allowed 55 seconds to read and answer each mental arithmetic question. For the actual test, if you do not have any hearing impairments, your test administrator will read out each question twice to you. This takes place **within** the time limit for each mental arithmetic question.
- You should note any instructions given in questions about the format of your answer, e.g. "correct to one decimal place".
- The question text is included in the space for each question.
- You should write your answer in the answer space for that question.
- You are not allowed to return to the mental arithmetic questions once they have been completed. In the actual test, this section will be removed once it has been completed.
- Decimal numbers should be written using a 'full stop' for the decimal point, for example '12.5'.
- Use of a calculator is **not** allowed in this section.

### ***Written Data and Arithmetic Questions***

The second section contains 16 questions worth one mark each. You are allowed 36 minutes to complete this section.

- You may answer the questions in any order.
- Some written questions share the same context.
- Decimal numbers should be written using a 'full stop' for the decimal point, for example '12.5'.
- A question may require you to:
  - write your answer in the answer space;
  - indicate the correct area(s) on a table, chart or graph by circling or ticking;
  - tick the correct answer option(s) from a list;
  - copy given value(s) into empty spaces in sentences, tables or charts.
- You are allowed to use a four-function calculator for questions in this section. For your actual test, your test centre will provide the calculator.
- For your actual test, your invigilator will advise you when there are 5 minutes remaining until the end of your test.

### **Mental Arithmetic**

Write your answers in the spaces.

### **Practice question**

A school minibus travelled 640 kilometres.

Taking 1 kilometre as equal to  $\frac{5}{8}$  of a mile,  
how many miles did the minibus travel?

**Answer:** \_\_\_\_\_ **miles**

### Question 1

During a school trip to Germany, each pupil was allowed to exchange £100 into euros for spending money.

The exchange rate was €1.06 to the pound.

How many euros did each pupil receive?

**Answer:** \_\_\_\_\_ euros

## Question 2

Ninety pupils travelled to an exhibition on two coaches.

Each coach cost £180 to hire.

The total entrance fee to the exhibition for all pupils was £90.

How much did each pupil have to pay to meet the total cost?

**Answer: £** \_\_\_\_\_

### Question 3

A test is marked out of 60. Pupils need 75 per cent to achieve grade A.

How many marks is this?

**Answer:** \_\_\_\_\_ marks

**Question 4**

The school library is open for

5 hours 20 minutes per day on Monday, Wednesday and Friday, and for

6 hours 30 minutes per day on Tuesday and Thursday.

What is the total time the library is open during the school week?

**Answer:** \_\_\_\_\_ **hours**

### Question 5

A primary school concert cost £80 for promotion, costumes and refreshments. The parents attending each paid a £1.50 entrance fee. Sixty parents attended.

How much money was left for the school funds?  
Give your answer in pounds.

**Answer: £** \_\_\_\_\_



**Question 6**

A school sold copies of the class photograph to 28 pupils in the class for £2.50 each.

What was the total amount raised from the sales of the photograph?

**Answer: £** \_\_\_\_\_

**Question 7**

What is 15 per cent as a decimal?

**Answer:** \_\_\_\_\_

**Question 8**

In a year group of 45 pupils, 27 were boys.

What fraction of the year group was girls?

Give your answer in its lowest terms.

**Answer:**  $\frac{\square}{\square}$

**Question 9**

A teacher plans a cross-country competition.

The course is 3.45 kilometres long. Pupils do 3 laps of the course.

What is the total distance run by each pupil in kilometres?

**Answer:** \_\_\_\_\_ kilometres

**Question 10**

There are 35 schools in a local authority.

Twenty-eight schools have been inspected in the last 4 years.

What percentage has not been inspected?

**Answer:** \_\_\_\_\_ %

### Question 11

A school play begins at 19:00 hours. It has one interval of 15 minutes.  
The play is 1 hour and 55 minutes long.

At what time does the play end?

Give your answer using the 24-hour clock.

Answer:  :  hours

**Question 12**

0.9 of a year group of 180 pupils took part in a school sports day.

How many pupils did not take part?

**Answer:** \_\_\_\_\_ pupils

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## Written Data and Arithmetic

### Question 13

As part of a data handling exercise, a group of pupils was investigating attendance at after-school clubs at their school. On a particular day, the attendance was as shown in the table.

Attendance at after-school clubs	
Chess	5
Computing	15
Drama	8
Music	7
Sports	18
<b>Total</b>	<b>53</b>

Approximately what fraction of the pupils attended the sports club?  
Circle the correct fraction.

$\frac{1}{4}$

$\frac{1}{3}$

$\frac{2}{5}$

$\frac{3}{8}$

### Question 14

As part of a data handling exercise, a group of pupils was investigating attendance at after-school clubs at their school.

A survey of pupils shows that at least 30% of all the 256 pupils in the school want to come to after-school clubs.

On a particular day, the attendance was as shown in the table.

<b>Attendance at after-school clubs</b>	
Chess	5
Computing	15
Drama	8
Music	7
Sports	18
<b>Total</b>	<b>53</b>

What is the minimum number of extra pupils, above the 53, who want to come to after-school clubs?

**Answer:** \_\_\_\_\_ pupils

### Question 15

A headteacher produced the following table to show performance in mathematics at GCSE from 2007 to 2010.

The table shows the percentage of candidates achieving each grade.

The percentages are rounded to the nearest whole number.

Year	Percentage of candidates achieving each grade									Total number of pupils
	A*	A	B	C	D	E	F	G	U	
2007	2	7	15	23	15	16	10	6	6	180
2008	2	8	15	22	17	16	10	5	5	200
2009	2	8	16	22	18	15	10	5	4	230
2010	3	10	20	20	20	14	8	3	2	270

Tick all the true statements:

- The number of pupils who gained a U increased each year.
- The number of pupils who gained a grade C increased each year.
- The number of pupils who achieved a grade B in 2010 was double the number with the same grade in 2007.

### Question 16

As part of a review of performance, a geography teacher prepared a table of marks for eight pupils from a series of tests throughout the year.

Test marks in geography (marks out of 80)						
Pupil	Test 1	Test 2	Test 3	Test 4	Test 5	Mean for pupil
A	45	42	35	21	45	37.6
B	38	40	48	35	52	42.6
C	41	51	44	56	67	
D	48	58	62	70	58	59.2
E	25	28	34	35	42	32.8
F	15	21	28	19	27	22.0
G	40	29	35	38	41	36.6
H	52	59	68	35	70	56.8
Range	37	38	40	51		

Copy the correct values from the list below into the empty boxes in the table.

27	43	50	51.7	51.8	51.9
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### Question 17

A newly qualified teacher attends a series of training courses during the induction year. Each course has three separate sessions on different dates. The table shows the total travelling distance for each course.

The teacher can claim travelling expenses of 32.5 pence per mile for the first 100 miles in each school year and 27.5 pence per mile above 100 miles, in addition to any train fares.

The teacher travels by train on the 17/12/07 and the 11/04/08 at a cost of £11.50 and £4.70 respectively.

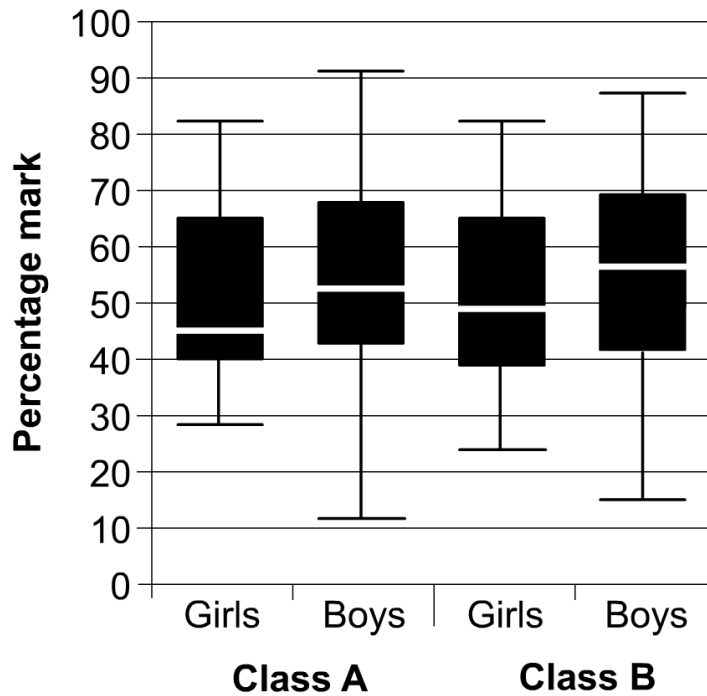
	Date	Total travelling distance (miles)
Course A	05/10/07	27
	16/10/07	27
	17/12/07	Train
Course B	18/01/08	32
	08/02/08	32
	28/03/08	32
Course C	11/04/08	Train
	02/05/08	18
	09/05/08	18

How much does the teacher claim for the travelling expenses for attending these courses?

**Answer: £** \_\_\_\_\_

### Question 18

At the departmental meeting, the Head of Mathematics used a box-and-whisker diagram to show pupils' percentage mock GCSE examination marks for boys and girls in two classes.



Tick all the true statements:

- Class A boys have the greatest range of percentage marks.
- Class A girls have the lowest median and the smallest range of percentage marks.
- Only Class B boys have a median percentage mark above 50%.

### Question 19

For a school visit to Iceland, each of the 25 pupils is allowed to take £40.00 spending money. Prior to the visit, the teacher collected the money and exchanged it for Icelandic Krona.

The exchange rate was £1.00 = 141.50 Krona.

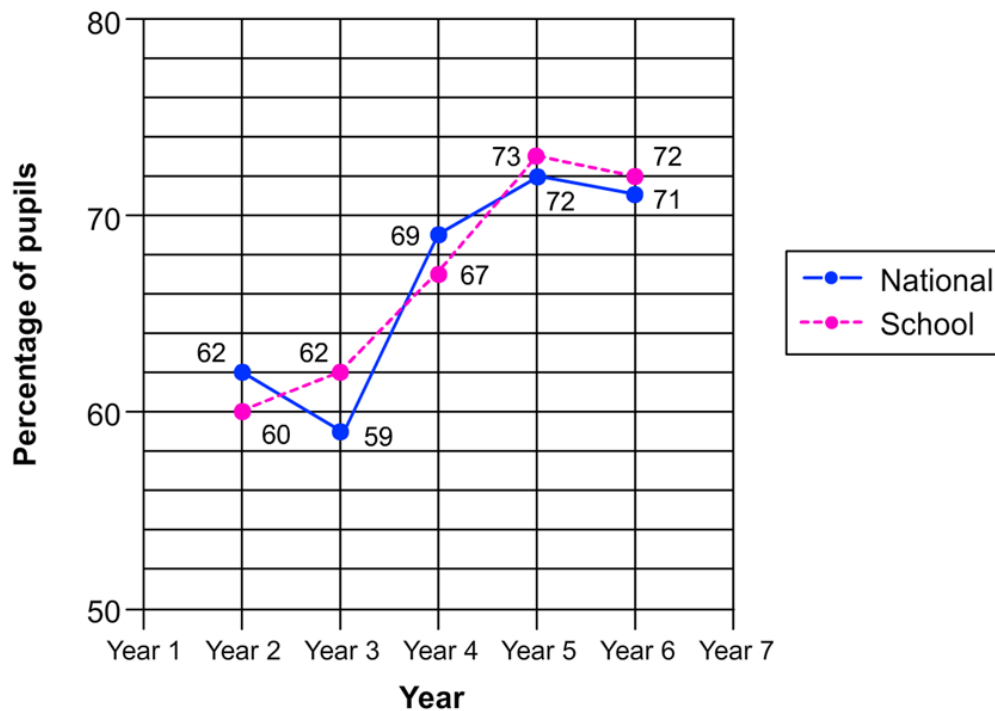
Commission of 1% was charged.

How many Krona did each pupil have as spending money after the commission was deducted? Give your answer to the nearest Krona.

**Answer:** \_\_\_\_\_ Krona

### Question 20

To inform a discussion on Key Stage 2 mathematics test results, the subject leader presented the following graph showing the percentage of pupils achieving Level 4 and above.



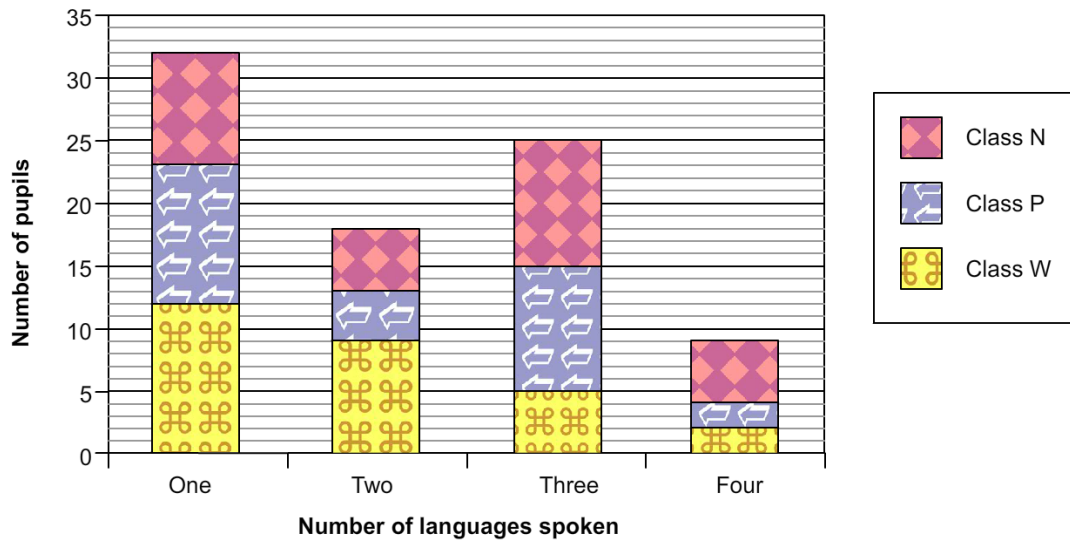
Tick all the true statements:

- The school's results were better than the national results in three of the five years.
- The school's results were within 2% of the national results in each year.
- The improvement for the school from Year 2 to Year 6 was 3 percentage points better than national improvement from Year 2 to Year 6.



### Question 21

In preparation for literacy teaching, a newly appointed Year 2 teacher looked at the number of languages spoken by pupils in the three classes of the year group in the school.



Circle the class in the table which has half of all the pupils in the year group who speak exactly two languages.

Class	Number of Pupils
Class N	29
Class P	27
Class W	28

## Question 22

A school in Manchester is planning a visit to a school in Exeter. Some of the journey will be on motorways (M56, M6 and M5); the rest of the journey will be on ordinary roads. The table shows the planned journey details.

The teacher uses this formula to estimate the total journey time:

$$\text{Time} = \frac{\text{Total distance (miles)} \times 1.25}{\text{Average speed (mph)}}$$

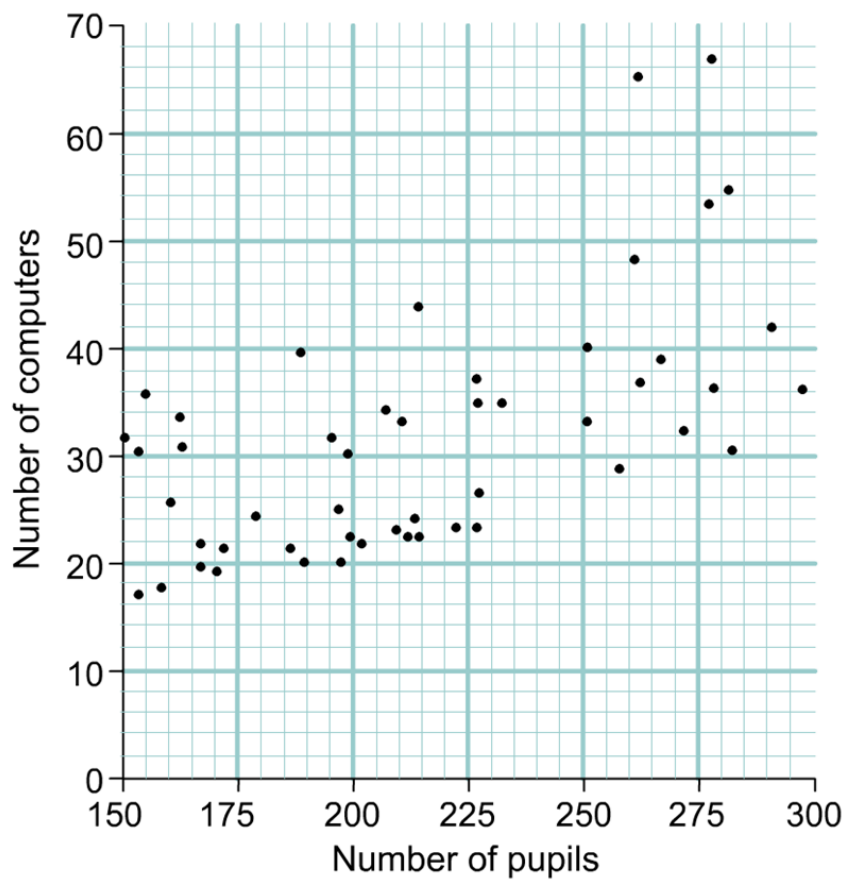
Journey details	Total distance (miles)
Leave school	0
Join M56	7
Leave M56, join A556	13
Leave A556, join M6	17
Leave M6, join M5	78
Leave M5, join A3015	236
Arrive at school	240

If the average speed is 60mph, what is the journey time according to the formula?

**Answer:** \_\_\_\_\_ hours

### Question 23

A primary headteacher compares her school's ICT facilities with the results of a survey of schools in the Local Authority. The scatter-graph shows the number of pupils and number of computers for 50 local schools. For the schools shown, the mean number of pupils is 217 and the mean number of computer is 33.



Draw a cross (×) on the dot that represents the school that is closest to average.

### Question 24

A parents' evening is planned to last from 16:15 to 19:00.

Within that time teachers will have a break from 17:30 until 17:45.

Each appointment is scheduled to last 8 minutes.

What is the maximum number of appointments each teacher can have?

18

19

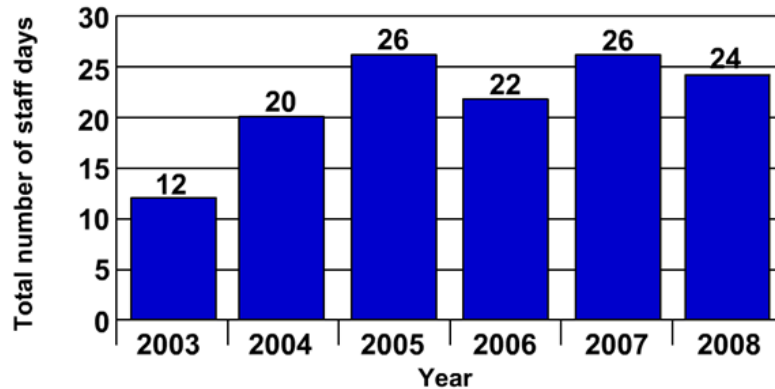
24

25

### Question 25

For a report to governors, a headteacher prepared a bar chart showing staff days out of school for professional development from 2003 to 2008.

The table shows the total number of staff days out of school for all reasons from 2003 and 2008.



Year	2003	2004	2005	2006	2007	2008
Total number of staff days out of school	33	38	40	48	54	60

Copy the correct values from the list below into the empty boxes to show the proportion of staff days out of school for professional development in 2005 and 2008.

2005

2008

0.6

0.65

0.56

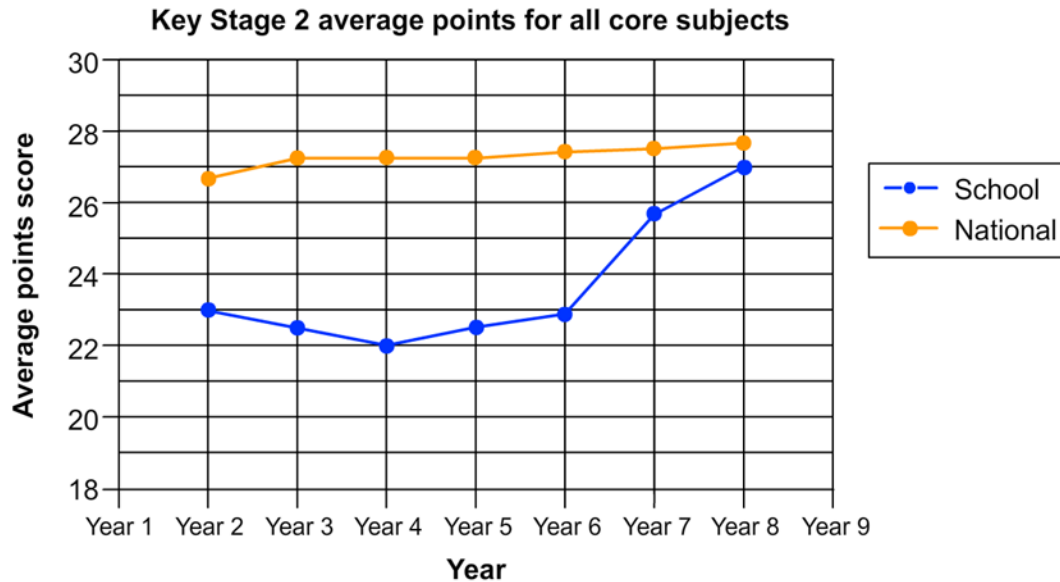
0.4

0.5

0.7

### Question 26

Primary teachers in the core subjects (English, mathematics and science) attended a meeting to review progress at Key Stage 2.



Tick all the true statements:

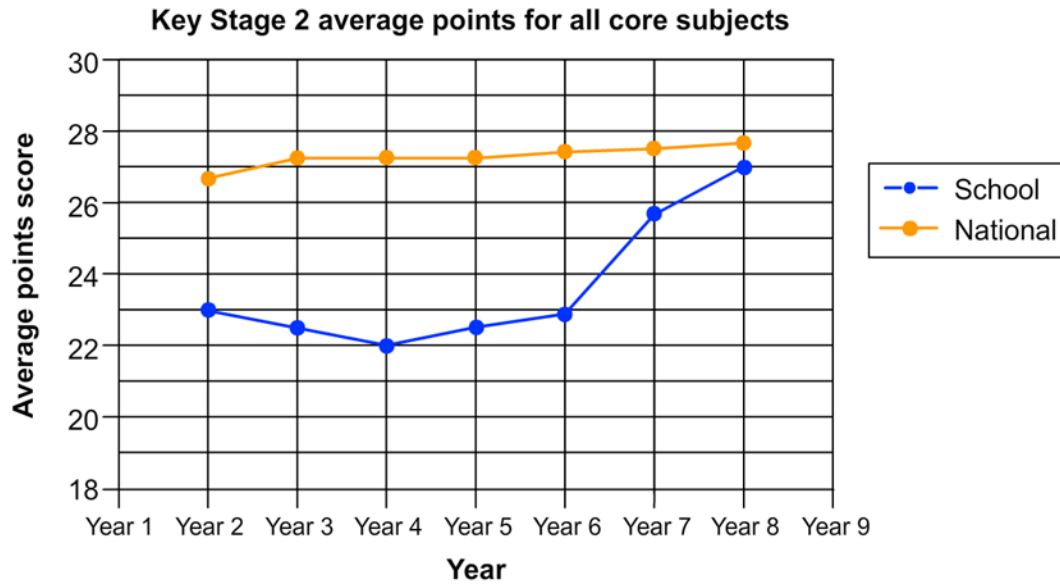
The school's lowest average points score was in Year 4.

The school's average points score fell from Year 2 to Year 4.

Since Year 4 the trend of improvement in the school's average points score has been greater than the trend of improvement in the national average points score.

### Question 27

Primary teachers in the core subjects (English, mathematics and science) attended a meeting to review progress at Key Stage 2.



On the graph, circle the year in which the school made the greatest progress in average points score.

### Question 28

A teacher compiles a test with a total of 60 marks. He wants to compare performance of this test with that of a previous test that had a total of 75 marks.

To convert marks out of 60 to marks out of 75 he should multiply by:

0.45

0.80

1.15

1.25



**END OF TEST**

### Mental Arithmetic Section

Question Number	Correct Answer (1 mark)	Also Accept (1 mark)	Do Not Accept (0 marks)
Practice	<b>400</b>	• 400.0	
1	<b>106 or 106.00</b>	• 106.0	• 106.000
2	<b>5 or 5.00</b>	• 5.0	• 5.000
3	<b>45</b>	• 45.0	
4	<b>29</b>	• 29.0	
5	<b>10 or 10.00</b>	• 10.0	• 10.000
6	<b>70 or 70.00</b>	• 70.0	• 70.000
7	<b>0.15</b>	• 0.150	
8	<b><math>\frac{2}{5}</math></b>	• $\frac{02}{05}$	
9	<b>10.35</b>	• 10.350	
10	<b>20</b>	• 20.0	
11	<b>21:10</b>		• 21:1 • 9:10
12	<b>18</b>	• 18.0	

## Written Data and Arithmetic Section

Question Number	Test Section	Correct Answer (1 mark)	Also Accept (1 mark)	Do Not Accept (0 marks)
13	WA	$\frac{1}{3}$	• $\frac{01}{03}$	
14	WA	24	• 24.0	
15	WA	Options B and C		
16	WA	Mean, Pupil C = 51.8 Range, Test 5 = 43		
17	WA	72.35		
18	WD	Options A and B		
19	WA	5603 or 5603.00	• 5603.0	• 5603.000
20	WD	Options A and C		
21	WD	Class W		
22	WA	5	• 5.0	
23	WD	(211, 33)		
24	WA	18		
25	WD	2005 = 0.65 2008 = 0.4		
26	WD	Options A, B and C		
27	WD	Year 7		
28	WA	1.25		

## Guidance for Answering the Questions

### Mental Arithmetic Questions

#### *Practice question*

1 kilometre is taken as  $\frac{5}{8}$  of a mile.

So, 640 kilometres is taken as  $640 \times \frac{5}{8}$  miles.

Now  $\frac{1}{8} \times 640 = 80$ .

So,  $\frac{5}{8} \times 640 = 400$  miles.

#### *Further help*

$\frac{5}{8}$  of 640 can also be calculated by multiplying 5 by 640 and then dividing by 8.

However, this is a more challenging mental task.

#### **Question 1**

1 pound = 1.06 euros

100 pounds =  $100 \times 1.06$  euros = 106 euros

#### *Further help*

To multiply 1.06 by 100, move all the figures in 1.06 two places to the left.

The result of your answer is 106.

#### **Question 2**

Total cost of coaches:  $2 \times \text{£}180 = \text{£}360$ .

Total cost of coaches and entrance:  $\text{£}360 + \text{£}90 = \text{£}450$ .

Cost per pupil:  $= \text{£}450 \div 90 = \text{£}5$ .

#### *Further help*

Alternative method:

It would be acceptable to work out the cost of the travel per pupil ( $360 \div 90$ )

and add it to the entrance cost per pupil ( $90 \div 90$ ).

**Question 3**

$$75\% = \frac{75}{100} = \frac{3}{4}$$

So, 75% of 60 =  $\frac{3}{4}$  of 60 = 45

The mark to achieve grade A is 45.

*Further help*

75% written as a fraction is  $\frac{75}{100}$ .

$\frac{75}{100}$  can be simplified to  $\frac{3}{4}$  by dividing the numerator (top) and denominator (bottom) by 5 and then by 5 again (or by 25 in one go).

To work out  $\frac{3}{4}$  of 60, first of all work out  $\frac{1}{4}$  (you do this by dividing by 4).

Then multiply the answer (15) by 3 to get  $\frac{3}{4}$  (45).

**Question 4**

3 × 5 hours and 20 minutes = 15 hours and 60 minutes = 16 hours

2 × 6 hours and 30 minutes = 12 hours and 60 minutes = 13 hours

Total opening hours = 16 + 13 hours = 29 hours

*Further help*

Alternative method:

Add all the hours first: 5 + 5 + 5 + 6 + 6 = 27 hours.

Then add all the minutes: 20 + 20 + 20 + 30 + 30 = 120 minutes = 2 hours.

27 hours + 2 hours = 29 hours

**Question 5**

Total money received is:  $60 \times \text{£}1.50 = \text{£}90$ .

Total money spent is  $\text{£}80$ .

Amount leftover is  $\text{£}90 - \text{£}80 = \text{£}10$ .

*Further help*

When multiplying 60 by 1.5 split the question into  $(60 \times 1) + (60 \times 0.5)$ .

The answer is then  $60 + 30$  which equals 90.

**Question 6**

Total amount =  $28 \times \text{£}2.50 = (28 \times \text{£}2) + (28 \times 50\text{p}) = \text{£}56 + \text{£}14 = \text{£}70$ .

*Further help*

Alternative method:

Make the question an easier mental calculation by using two operations that cancel each other out.

Divide 28 by 4 and also multiply  $\text{£}2.50$  by 4.

$$28 \div 4 = 7$$

$$\text{£}2.50 \times 4 = \text{£}10$$

Now multiply the two parts to the answer:  $7 \times 10 = \text{£}70$ .

**Question 7**

$$15\% = 15 \text{ out of } 100 = 15 \div 100 = 0.15$$

*Further help*

Think of 15 as 15.0.

To divide by 15 by 100 move each figure two places to the right.

The answer is .150 which should be written as 0.15 (or .15).

**Question 8**

Number of girls in the year group =  $45 - 27 = 18$ .

Number of girls as a fraction of the year group =  $\frac{18}{45}$ .

Which, when simplified to its lowest terms =  $\frac{2}{5}$ .

**Further help**

To simplify the fraction find the number which divides into both the top number (18) and the bottom number of the fraction (45).

In this case 9 is the largest number. Dividing both the top and the bottom numbers by 9 leaves 2 on the top and 5 on the bottom.

It is also possible to simplify the fraction in two stages. Firstly divide both the top and bottom numbers by 3 leaving 6 on the top and 15 on the bottom.

Then divide both numbers by 3 again leaving the same final answer as before, 2 on the top and 5 on the bottom.

**Question 9**

Total distance run =  $3 \times 3.45$  km

$3.45\text{km} = 3\text{km} + 0.45$  km

So, total distance run =  $3 \times (3 + 0.45) = 9 + 1.35 = 10.35$

**Further help**

Either:

Split 3.45 into 3 and 0.45

$$3 \times 3 = 9$$

$$3 \times 0.45 = 1.35$$

$$9 + 1.35 = 10.35$$

Or:

$$3.45 = 3.5 - 0.05$$

$$3 \times 3.45 = 3 \times (3.5 - 0.05) = 10.5 - 0.15 = 10.35$$

**Question 10**

Total number of schools = 35

Number inspected = 28

Fraction inspected  $\frac{28}{35}$

Which simplifies to  $\frac{4}{5}$

Percentage inspected =  $\frac{4}{5} \times 100 = 80\%$ .

Percentage not inspected =  $100 - 80 = 20\%$ .

**Further help**

Alternative method:

Work out the fraction not inspected:  $\frac{1}{5}$ .

Then convert the fraction to a percentage by multiplying it by 100 (20%).

The total number of schools represents 100% of the schools in the authority.

To find the percentage inspected it is necessary to subtract the percentage not inspected from 100.

**Question 11**

Total duration of play and interval

= 1 hour 55 minutes + 15 minutes = 2 hours 10 minutes.

Time when play starts = 19:00 hours.

Total duration of play and interval = 2 hours and 10 minutes.

Time when play ends = 21:10.

**Further help**

To add the 15 minutes to 1 hour and 55 minutes:

First add 5 minutes to get to 2 hours.

Then add the remaining 10 minutes to get to a total of 2 hours and 10 minutes.



**Question 12**

The proportion that did not take part =  $1 - 0.9 = 0.1$ .

The number of pupils that did not take part =  $0.1 \times 180 = 18$ .

**Further help**

Multiplying a number by 0.1 is the same as dividing it by 10.

180 can be written as 180.0

To divide 180.0 by 10, move each figure one place to the right.

The resulting answer is 18.0 or 18.

**Written Questions****Question 13**

A:  $\frac{1}{4}$  of 53 = 13 (to the nearest whole number)

B:  $\frac{1}{3}$  of 53 = 18 (to the nearest whole number)

C:  $\frac{2}{5}$  of 53 =  $2 \times \frac{1}{5}$  of 53 = 21 (to the nearest whole number)

D:  $\frac{3}{8}$  of 53 =  $3 \times \frac{1}{8}$  of 53 = 20 (to the nearest whole number)

18 people attended the Sports Club.

The fraction producing the answer closest to 18 =  $\frac{1}{3}$ .

**Further help**

To work out  $\frac{1}{4}$  of 53, divide 53 by 4.

The answer is 13.25, which is 13 when rounded to the nearest whole number.

The other three fractions in the question can be evaluated in a similar manner.

**Question 14**

The number that want to attend = 30% of 256 = 76.8.

As the number of pupils wanting to attend has to be at least 30% of the number in the school the answer is rounded up to 77.

The number of pupils above 53 is 24.

**Further help**

30% is 30 out of every 100.

To calculate 30% of 256, divide by 100 and then multiply by 30.

If the answer of 76.8 had been rounded down to 76 it would have produced an answer that was less than 30% of the number of pupils in the school.

To work out how many pupils 77 is above 53, just subtract 53 from 77.

**Question 15**

*Statement 1: The number of pupils who gained a U increased each year.*

2007: 6% of 180 = 10.8.

2008: 5% of 200 = 10.

2009: 4% of 230 = 9.2.

Statement 1 is *False*.

*Statement 2: The number of pupils who gained a grade C increased each year.*

2007: 23% of 180 = 41.4.

2008: 22% of 200 = 44.

2009: 22% of 230 = 50.6.

2010: 20% of 270 = 54.

Statement 2 is *True*.

*Statement 3: The number of pupils who achieved a grade B in 2010 was double the number with the same grade in 2007.*

The number obtaining grade B in 2010:  $20\%$  of  $270 = 54$ .

The number of obtaining grade B in 2007:  $15\%$  of  $180 = 27$ .

54 is double 27.

Statement 3 is *True*.

#### *Further help*

6% is 6 out of 100.

To calculate 6% of 180, divide 6 by 100 and then multiply by 180.

The other percentage calculations can be done in a similar manner.

#### **Question 16**

Total of Pupil C's scores:  $= 41 + 51 + 44 + 56 + 67 = 259$ .

Mean score  $= 259 \div 5 = 51.8$ .

Highest score in Test 5  $= 70$ .

Lowest score in Test 5  $= 27$ .

Range of scores  $= 70 - 27 = 43$ .

#### *Further help*

The mean of a group of numbers is calculated by adding them all together (259) and then dividing the total by how many numbers there are in the group (5).

The range of a group of numbers is the difference between the highest number (70) and the lowest number (27).

#### **Question 17**

Total mileage:  $(2 \times 27) + (3 \times 32) + (2 \times 18) = 54 + 96 + 36 = 186$  miles.

Total mileage claim:  $(100 \times 32.5p) + (86 \times 27.5p) = \text{£}56.15$ .

Total rail fares:  $\text{£}11.50 + \text{£}4.70 = \text{£}16.20$ .

Total fares  $= \text{£}56.15 + \text{£}16.20 = \text{£}72.35$ .

*Further help*

The number of miles that should be claimed at the lower rate is the total mileage (186) less the basic mileage (100).

The overall claim is the total of the mileage claim and the rail fares.

**Question 18**

*Statement 1: Class A boys have the greatest range of percentage marks.*

Approximate range of marks:

Class A girls:  $82 - 29 = 53$ .

Class A boys:  $91 - 11 = 80$ .

Class B girls:  $82 - 24 = 58$ .

Class B boys:  $88 - 15 = 73$ .

The greatest range is for Class A boys.

Statement 1 is *True*.

*Statement 2: Class A girls have the lowest median and the smallest range of percentage marks.*

From the figures above, Class A girls have the smallest range.

By checking the diagram it can be seen that they also have the lowest median.

Statement 2 is *True*.

*Statement 3: Only Class B boys have a median percentage mark above 50%.*

Class A boys also have a median above 50 marks.

Statement 3 is *False*.

*Further help*

The range is found by subtracting the lowest score (the bottom of the whisker) from the highest score (the top of the whisker). Approximate readings are sufficient as the range for one group of pupils (Class A boys) is clearly greater than for any other groups.

The median is shown as a white line inside each black box and can be read off without the need for calculation.

**Question 19**

£1 = 141.50 Krona

£40 = 5660 Krona

Commission = 1% of 5660 Krona = 56.60 Krona.

The spending money received by each pupil =  $5660 - 56.60 = 5603.40$ .  
5603 to the nearest Krona.

*Further help*

£40 exchanged for Krona would be worth 40 times as much as £1 exchanged for Krona.

1% of an amount is  $\frac{1}{100}$  of that amount.

In this case start with 5660 (the total Krona per pupil before commission is deducted) and then divide it by 100.

The commission is deducted from the number of Krona before passing it to the pupil.

**Question 20**

*Statement 1: The school's results were better than the national results in three of the five years.*

The school's results were better than the national results in the following years: Year 3, Year 5 and Year 6.

Statement 1 is *True*.

*Statement 2: The school's results were within 2% of the national results in each year.*

In Year 3 the difference between the school's results and the national results was 3 percentage points.

Statement 2 is *False*.

*Statement 3: The improvement for the school from Year 2 to Year 6 was 3 percentage points better than the national improvement from Year 2 to Year 6.*

The improvement in the school's results was 12 percentage points.

The improvement in the national results was 9 percentage points.

The school's improvement was 3 percentage points better than the national improvement.

Statement 3 is *True*.

#### *Further help*

The school's results are better whenever the dotted pink line is above the solid blue line.

In Year 3 the school's results were 62% and the national results 59%.

The difference is 3 percentage points.

Over the whole period the school's results increased from 60% to 72%, a change of 12 percentage points. The national results increased from 62% to 71%, a change of 9 percentage points.

**Question 21**

The bar chart shows that  
the number of pupils who can speak 2 languages = 18.

Half of that number = 9.

The bar chart shows that the class that has  
this many pupils speaking exactly 2 languages = Class W.

**Further help**

To answer this question it is important to interpret the bar chart carefully in the context of the question.

Firstly, work out the total number of pupils who speak two languages.

This is the total height of the second bar (18).

Half of 18 is 9.

Looking again at the second bar, one of the shaded blocks represents  
9 pupils. The shading for this block shows it represents Class W.

**Question 22**

Total distance = 240 miles.

Applying the formula:  $\text{Time} = \frac{240 \times 1.25}{60} = 5$  hours.

**Further help**

The total distance is shown at the bottom of the table.

The calculation can be performed by entering the numbers from the question into the formula.

**Question 23**

The position on the graph which represents the mean is found where the following lines cross:

217 on the 'Number of pupils' axis.

33 on the 'Number of Computers' axis.

The nearest plotted point on the graph is approximately:

211 on the 'Number of pupils' axis.

33 on the 'Number of Computers' axis.

*Further help*

All the work is done by reading off the graph.

No calculations are required.

**Question 24**

Start-time for parents' evening = 16:15.

Start-time for the break = 17:30.

Total number of minutes between the start and the break = 75 minutes.

Number of appointments before the break =  $75 \div 8$  minutes = 9.375.

So the maximum appointments before the break = 9.

End-time for the break = 17:45.

End-time for the parents' evening = 19:00.

Number of appointments after the break =  $75 \div 8$  minutes = 9.375.

So the maximum appointments after the break = 9.

The total number of available appointments is  $9 + 9 = 18$ .

*Further help*

There are 45 minutes between 16:15 and 17:00. There is also another 30 minutes between 17:00 and 17:30. This gives a total time of 75 minutes between 16:15 and 17:30. Dividing this by 8 gives an answer of 9.375.

The answer needs to be rounded down to the nearest whole number (9) to calculate the number of complete appointments before the break.

There are 15 minutes between 17:45 and 18:00 and there are 60 minutes between 18:00 and 19:00, which gives a total of 75 minutes after the break.

So another 9 complete appointments are available after the break.

Adding the 9 appointments before the break and the 9 appointments after the break gives a total of 18 appointments.



**Question 25**

The proportion of days out of school for professional development:

$$2005: 26 \div 40 = 0.65.$$

$$2008: 24 \div 60 = 0.40.$$

**Further help**

To work out the proportion that one number (26) is of another (40), express the numbers as a fraction  $\left(\frac{26}{40}\right)$ .

Then, to work out the proportion as a decimal, divide the first number (26) by the second number (40).

**Question 26**

*Statement 1: The school's lowest points score was in Year 4.*

The lowest point on the school line is in Year 4.

Statement 1 is *True*.

*Statement 2: The school's average points score fell from Year 2 to Year 4.*

The school line went downwards between Year 2 and Year 4.

Statement 2 is *True*.

*Statement 3: Since Year 4 the trend of improvement in the school's average points score has been greater than the trend of improvement in the national average points score.*

Between Year 4 and Year 8:

The school's results increased by 5 points.

The national results increased by less than 1 point.

Statement 3 is *True*.

*Further help*

The lowest average score can be found where the graph is at its lowest point.  
A falling score is represented on the graph by a downward sloping line.

Between Year 4 and Year 8:

The school's average score went from 22 points to 27 points,  
an increase of 5 points.

The average national score went from just over 27 points to under 28 points,  
an increase of less than 1 point.

The school's trend of improvement was greater.

**Question 27**

The greatest progress in one year is shown by the steepest section  
of the graph.

The year at the end of that section on the school graph is year 7.

*Further help*

The school graph is coloured blue.

The steeper that line goes upward the greater the progress.

The steepest section on the school graph is between year 6 and year 7.

**Question 28**

In order to work out what to multiply each mark by consider these comparable  
performances:

To get full marks in a test out of 60 you would need to score 60 marks.

To get full marks in a test out of 75 you would need to score 75 marks.

So, to be comparable, every score needs to be increased by

a factor of  $\frac{75}{60} = 1.25$ .

*Further help*

To convert  $\frac{75}{60}$  to a decimal divide 75 by 60, which gives 1.25.