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# Numeracy Professional Skills Practice Test 2 - Answers

**www.sigma-network.ac.uk Numeracy Professional Skills Test 2 – Answers**

## Mark Scheme

### Mental Arithmetic Section

|  |  |  |  |
| --- | --- | --- | --- |
| **Question Number** | **Correct Answer**  **(1 mark)** | **Also Accept**  **(1 mark)** | **Do Not Accept**  **(0 marks)** |
| 1 |  |  |  |
| 2 |  |  |  |
| 3 |  |  |  |
| 4 |  |  |  |
| 5 |  |  |  |
| 6 | **or** |  |  |
| 7 |  |  |  |
| 8 |  |  |  |
| 9 |  |  |  |
| 10 |  |  |  |
| 11 |  |  |  |
| 12 | **0** |  |  |

### Written Data and Arithmetic Section

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Question Number** | **Test Section** | **Correct Answer**  **(1 mark)** | **Also Accept**  **(1 mark)** | **Do Not Accept (0 marks)** |
| 13 | WD | **Options A and B** |  |  |
| 14 | WD |  |  |  |
| 15 | WD |  |  |  |
| 16 | WA | **hours and minutes** |  | hours and minutes |
| 17 | WA |  |  |  |
| 18 | WD |  |  |  |
| 19 | WA | **Pupil B** |  |  |
| 20 | WD | **Options A and C** |  |  |
| 21 | WA |  |  |  |
| 22 | WD | **Classes and** |  |  |
| 23 | WA |  |  |  |
| 24 | WA | plain flour**,**  teaspoons ground ginger**,**  teaspoons ground cinnamon |  |  |
| 25 | WA | **Options B and C** |  |  |
| 26 | WA |  |  |  |
| 27 | WA |  |  | 58860.020 |
| 28 | WA | **Pupil A:**  **Pupil B:** |  |  |

## Guidance for Answering the Questions

### Mental Arithmetic Questions

#### Question 1

The number of pupils in a class is .

The number of pupils who got grade A is .

The fraction of pupils who got grade A is .

*Further help*

out of is equivalent to: out of , which as a fraction is .

#### Question 2

Pupils left school at .

The journey one way to Bath takes hour and minutes.

The journey from Bath to school also takes hour and minutes, so the total journey time is hours and minutes, which is the same as hours and minutes.

Pupils spent hours in Bath.

Pupils were out of school for hours and minutes.

Pupils returned to school at .

#### Question 3

Zero point zero one is written as a decimal.

Multiplying by is the same as dividing by .

#### Question 4

The number of slices of cake sold is .

The price of one slice of cake is .

The amount of money collected from the sale of cake is .

The number of biscuits sold is .

The price of one biscuit is .

The amount of money collected from the sale of cake is .

The total amount of money collected for the charity is .

#### Question 5

The number of classes in a primary school is .

The average number of pupils in each class is .

The number of pupils in the school is: .

*Further help*

To multiply by first think of as and multiply both by :

.

Then add these two results to get the final answer: .

#### Question 6

The amount of pocket money John got is .

euros

is worth euros.

*Further help*

First note that is equivalent to and that is equivalent to . To multiply by rewrite as and multiply that by . When multiplying the order of numbers does not matter, therefore, .

#### Question 7

The length and width of a classroom are and .

The area of a rectangle is calculated by multiplying length by width: .

*Further help*

One method to solve the multiplication is by breaking down the second number into easier numbers: .

***Question 8***

The number of points pupil scored in the mock GCSE exam is .

Pupil’s score increased by at the actual GCSE exam.

is equivalent to . of is .

Pupil got points in the actual GCSE exam.

#### Question 9

The number of pupils in a year group is .

The number of pupils who do not like maths is .

The number of pupils who like maths is .

The proportion of the year group that likes maths: out of is equivalent to out of , whis as a decimal is .

*Further help*

To simplify a fraction/proportion, look for a number that divides both numbers (the numerator and the denominator).

In the example, both and can be divided by (or in stages by for example or by ) giving and respectively (i.e. the proportion out of ).

#### Question 10

The distance cycled is kilometres.

kilometres is approximately miles.

kilometres is approximately miles.

is: .

So, kilometres is approximately miles.

*Alternative method:*

divided by equals .

multiplied by equals .

#### Question 11

The number of pupils in a year group is .

The number of pupils achieving grade A or B is of .

The number of pupils achieving grade A is .

The number of pupils achieving grade B is .

*Further help*

is equivalent to .

of

The number achieving grade A is stated in the question.

The number achieving grade B is calculated by subtracting the number achieving grade A from the number achieving grade A or B.

#### Question 12

The number of classes in a school is .

The number of pupils in a school is .

The average number of pupils in each class is .

### Written Questions

#### Question 13

*Statement 1: The range of marks was wider for the Maths test than for the English test.*

Maximum Maths test mark is .

Minimum Maths test mark is .

The range of marks for the Maths test is .

Maximum English test mark is .

Minimum English test mark is .

The range of marks for the English test is .

The range of marks was wider for the Maths test than for the English test.

Statement 1 is True.

*Statement 2: Exactly of pupils did better in English than they did in Maths.*

The number of pupils who did better in English than they did in Maths is .

The number of pupils who took both tests is .

out of is a half, i.e. .

Statement 2 is True.

*Statement 3: pupils scored less than marks on the Maths test.*

The number of pupils scoring less than marks on the Maths test is .

Statement 3 is False.

*Further help*

Statement 1: Range is the difference between maximum and minimum value in the data set. Marks for the Maths test are on the horizontal axis while for English on the vertical axis. To find the maximum and minimum marks for Maths test, find the most right and most left points (respectively) and read their coordinates on the horizontal axis. To find the maximum and minimum marks for English test, find the highest and lowest points (respectively) on the graph and read their coordinates on the vertical axis.

Statement 2: First you need to identify the area on the graph where marks for Maths and English tests are the same. This is the diagonal line passing through points and . The points above the line represent pupils who scored more marks in English test than they did in Maths.

Statement 3: First imagine a vertical line going up from the mark of on the horizontal axis. All the points to the left from that line represent pupils who scored less than marks on the Maths test.

#### Question 14

|  |  |
| --- | --- |
| **Subject** | **Percentage point difference** |
| Maths |  |
| English |  |
| Humanities |  |
| Foreign Language |  |
| Physics |  |
| Chemistry |  |
| Biology |  |
| PE |  |
| IT |  |

The highest percentage point difference is (Foreign Language).

#### Question 15

The number of pupils in School A is .

The percentage of pupils in School A who like Maths best is .

The number of pupils in School A who like Maths best is of (rounded to the nearest whole number).

The number of pupils in School B is .

The percentage of pupils in School B who like Maths best is .

The number of pupils in School B who like Maths best is of (rounded to the nearest whole number).

The number of pupils who like Maths best in School B is greater by 6 in comparison to School A.

*Further help*

To calculate a percentage of an amount on a calculator:

Method 1: multiply the two numbers together and then divide by . e.g. of .

Method 2: convert percentage to decimal and multiply it by the number of pupils in the school: e.g. of .

#### Question 16

The total time spent on reading is

hours hours and minutes.

*Further help*

hours is equivalent to and (three quarters) of an hour.

of an hour is minutes.

#### Question 17

The amount of money allowed per pupil is .

The exchange rate at the airport in the UK is .

Exchanging in the UK each pupil would get .

The exchange rate in Poland is higher by compared to the rate in the UK, which in Polish money is .

The exchange rate in Poland is .

Exchanging in Poland, each pupil would get .

Exchanging money in Poland, each pupil gets more than they would get in the UK.

*Further help*

To calculate of you can use one of two methods:

Method 1: multiply the two numbers together and then divide by . e.g. of .

Method 2: convert percentage to decimal and multiply it by the exchange rate in the UK: of .

The question could also be solved using a single calculation .

#### Question 18

The number of pupils achieving A\* - C in 2010 was .

The number of pupils achieving A\* - C in 2011 decreased by when compared with the previous year.

Therefore, the number of pupils in 2011 was equal to of the number of pupils in 2010: of (rounded to the nearest whole number).

The number of pupils achieving A\* - C in 2013 was .

The number of pupils achieving A\* - C in 2013 increased by when compared with the previous year.

Therefore, the number of pupils in 2013 was equal to of the number of pupils in 2012. Since the number of pupils in the past needs to be found, division has to be used instead of multiplication (as in the calculation above): (rounded to the nearest whole number).

#### Question 19

Pupil A:

Final percentage mark rounded to the nearest whole number.

Pupil B:

Final percentage mark rounded to the nearest whole number.

Pupil C:

Final percentage mark rounded to the nearest whole number.

Pupil B got grade B as it is between and inclusive.

#### Question 20

*Statement 1: In May all three museums had the lowest number of visitors across five months.*

The lowest number of visitors in the British Museum was in May and it was .

The lowest number of visitors in the Science Museum was in May and it was .

The lowest number of visitors in the Natural History Museum was in May and it was .

Statement 1 is True.

*Statement 2: The smallest difference in the number of visitors between the Science Museum and the Natural History Museum was in September.*

|  |  |
| --- | --- |
| **Month** | **Difference in the number of visitors between the Science Museum and Natural History Museum** |
| **May** |  |
| **June** |  |
| **July** |  |
| **August** |  |
| **September** |  |

The smallest difference in the number of visitors between the Science Museum and Natural History Museum was in August.

Statement 2 is False.

*Statement 3: The Natural History Museum has the widest range in the number of visitors.*

The range in the number of visitors in the British Museum was .

The range in the number of visitors in the Science Museum was .

The range in the number of visitors in the Natural History Museum was .

The Natural History Museum has the widest range in the number of visitors.

Statement 3 is True.

*Further help*

Statement 3: Range is the difference between the biggest and smallest value.

#### Question 21

It took pupils to feed cows.

One pupil feeds on average cows.

pupils would feed cows.

#### Question 22

The table describes the trend for each class.

Consistent trend of improvement is when values improve by the same amount each month.

|  |  |
| --- | --- |
| **Class** | **Is trend of improvement consistent?** |
| **4a** | No |
| **4b** | No |
| **4c** | Yes, each month |
| **5a** | No |
| **5b** | No |
| **5c** | No |
| **6a** | Yes, each month |
| **6b** | No |
| **6c** | No |

The classes showing consistent trend of improvement are 4c and 6a.

#### Question 23

The table describes the percentage point change for each class.

|  |  |
| --- | --- |
| **Class** | **Percentage point change** |
| **4a** |  |
| **4b** |  |
| **4c** |  |
| **5a** |  |
| **5b** |  |
| **5c** |  |
| **6a** |  |
| **6b** |  |
| **6c** |  |

The number of classes is .

The number of classes achieving at least two percentage points increase in attendance over the six-month period is .

The proportion of classes achieving at least two percentage points increase in attendance over the six-month period is out of rounded to one decimal place.

#### Question 24

The amount of butter pupils have is . This is times as much as in the recipe.

To follow the recipe, pupils need times as much of other ingredients as in the recipe.

The amount of plain flour pupils need is .

The amount of ground ginger pupils need is teaspoons.

The amount of ground cinnamon pupils need is teaspoons.

#### Question 25

*Statement 1: Some pupils achieved less than in Mathematics.*

The value for the mode indicates that at least one pupil achieved a percentage mark of .

The range of marks is .

So the lowest mark in Mathematics cannot be lower than: .

Statement 1 is False.

*Statement 2: At least one pupil achieved more than in English.*

The lowest mark possible is .

The range of marks is .

If someone obtained then the highest mark in the class would be .

So, whatever the lowest score for the class, the highest mark will be at least .

Statement 2 is True.

*Statement 3: All pupils achieved at least 20 in Science.*

The value for the mode indicates that at least one pupil achieved a percentage mark of .

The range of marks is .

So the lowest mark in Science cannot be lower than: .

Statement 3 is True.

#### Question 26

The race distance is kilometres.

The time race started is .

The average speed of the winner is miles per hour.

kilometres is approximately miles.

Time is calculated by dividing distance over speed. However, both, speed and distance have to be in terms of the same unit for distance.

kilometres equals miles.

The amount of time it took to complete the race is hour minutes.

The winner completed the race at .

#### Question 27

The amount of money collected in the UK: Kenyan Shillings.

The amount of money collected in France: Kenyan Shillings.

The amount of money collected in the U.S.A.: Kenyan Shillings.

In total Kenyan Shillings was sent to support the mission.

#### Question 28

Pupil A achieved in test 1.

The mark of pupil A increased by in test 2, i.e. pupil A achieved of mark in test 1.

Pupil A achieved of rounded to the nearest whole number.

Pupil B achieved in test 1.

The mark of pupil B decreased by in test 2, i.e. pupil A achieved of mark in test 1.

Pupil B achieved of rounded to the nearest whole number.

This resource was produced by the **sigma** Network Employability Special Interest Group whose members are:

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