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**FUNCTIONAL SKILLS**

Maths Level 1





**Area: Handling information and data**

Criterion 29: Find the mean and range of a set of quantities

**Calculating the mean**

The mean is a type of average. An average is a number that gives an overview of collected data. The mean can be calculated in 2 steps.

1. Add up all the numbers in the dataset
2. Divide the total by how many numbers there are

**Question 1**

A teacher records the number of books read by 6 students in a month.   
Here are the results:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 12 | 19 | 5 | 4 | 7 | 4 |

Calculate the mean.

(Show your working out.)

|  |
| --- |
|  |

**Question 2**

The table shows the length of different children’s heights in centimetres (cm).

What is the mean height of the children?

|  |  |
| --- | --- |
| **Child** | **Height (cm)** |
| Child 1 | 92 |
| Child 2 | 110 |
| Child 3 | 103 |
| Child 4 | 98 |
| Child 5 | 87 |

(Show your working out.)

|  |
| --- |
|  |

**Question 3**

4 students sit the same maths exam. Their results are shown in the table below.

|  |  |  |  |
| --- | --- | --- | --- |
| 17 | 13 | 18 | 16 |

Calculate the mean exam score.

(Show your working out.)

|  |
| --- |
|  |

**Question 4**

Below are some ratings for a new restaurant in the local shopping centre.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 36 | 29 | 21 | 44 | 37 | 35 | 43 |

Calculate the mean score.

(Show your working out.)

|  |
| --- |
|  |

**Question 5**

The local shopping centre is checking their online reviews.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 12 | 5 | 11 | 8 | 10 |
| 15 | 12 | 13 | 9 | 19 |

Calculate the mean.

(Show your working out.)

|  |
| --- |
|  |

**Calculating the range**

The range is another type of average. The range provides information on the difference between the largest and smallest values in a dataset. The range can be calculated in 2 steps.

1. Find the largest and smallest values
2. Subtract the smallest number from the largest

**Question 6**

A shop records the amount of money the previous 6 customers spent.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| £56.00 | £103.90 | £65.00 | £114.94 | £94.70 | £84.25 |

Calculate the range.

(Show your working out.)

|  |
| --- |
|  |

**Question 7**

Calculate the range of these numbers.

|  |  |  |  |
| --- | --- | --- | --- |
| 52 | 44 | 76 | 37 |
| 73 | 64 | 52 | 63 |

(Show your working out.)

|  |
| --- |
|  |

**Question 8**

Cards are numbered from 0 to 20. Jay chooses 8 cards.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 13 | 7 | 6 | 5 | 18 | 14 | 11 | 6 |

Calculate the range.

(Show your working out.)

|  |
| --- |
|  |

**Question 9**

The table shows different children’s heights in centimetres (cm).

Calculate the range.

|  |  |
| --- | --- |
| **Child** | **Height (cm)** |
| Child 1 | 99 |
| Child 2 | 113 |
| Child 3 | 122 |
| Child 4 | 108 |
| Child 5 | 95 |

(Show your working out.)

|  |
| --- |
|  |

**Exam practice 1**

Calculate the mean and range of this set of data.

|  |  |
| --- | --- |
| 22 | 65 |
| 32 | 29 |
| 45 | 48 |
| 39 | 54 |
| 67 | 42 |

(4 marks)

(Show your working out.)

|  |
| --- |
| Mean: \_\_\_\_\_\_\_\_\_\_\_  Range: \_\_\_\_\_\_\_\_\_\_\_ |

**Exam practice 2**

The table below displays a show’s number of views over the past 10 days.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 2.4 million | 2.7 million | 3.1 million | 2.8 million | 2.5 million |
| 3.6 million | 2.9 million | 2.2 million | 2.6 million | 2.3 million |

Calculate the mean and range of the views.

Which method gives the most accurate representation of the number of views?

(5 marks)

(Show your working out.)

|  |
| --- |
| Mean: \_\_\_\_\_\_\_\_\_\_\_  Range: \_\_\_\_\_\_\_\_\_\_\_  Most accurate method: \_\_\_\_\_\_\_\_\_\_\_ |

**Answers**

**Calculating the mean**

**Question 1**

12 + 19 + 5 + 4 + 7 + 4 =

54 ÷ 6 = 8.5

**Question 2**

92 + 110 + 103 + 98 + 87 = 490

490 ÷ 5 = 98

**Question 3**

17 + 13 + 18 + 16 = 64

64 ÷ 4 = 16

**Question 4**

36 + 29 + 21 + 44 + 37 + 35 + 43 = 245

245 ÷ 7 = 35

**Question 5**

12 + 5 + 11 + 8 + 10 + 15 + 12 + 13 + 9 + 19 = 114

114 ÷ 10 = 11.4

**Calculating the range**

**Question 6**

£114.94 - £56.00 = £58.94

**Question 7**

76 – 37 = 39

**Question 8**

18 – 5 = 13

**Question 9**

122 – 95 = 27

**Exam practice 1**

Mean

22 + 32 + 45 + 39 + 67 + 65 + 29 + 48 + 54 + 42 = 443

443 ÷ 10 = 44.3

Range

67 – 22 = 45

**Exam practice 2**

Mean

Total of values = 27.1 million

27.1 million ÷ 10 = 2.71 million

Range

3.6 million – 2.2 million = 1.4 million

The most accurate representation is the mean.

**Your functional skills exam**

Your functional skills exams will consist of 2 papers.   
These papers will take place over the following time periods:

* Non-calculator paper – 40 minutes
* Calculator – 1 hour 50 minutes

Further information on the format that your test will take can be obtained from your training provider.

**Hints and tips**

* Find out what format your exam will be in. It may be paper-based   
  or on-screen.
* Plan what you are going to revise in advance. Don’t leave it until the last minute.
* Do as many past papers as you can so you are prepared for the day. If possible, try to complete the past papers following the same format as the actual exam.
* Find a quiet place to study and revise. It helps to sit at a table or a desk, don’t revise in bed.
* Don’t stay up all night revising the night before your exam. It’s important to have a good rest so you feel refreshed and ready to go.
* Read the question 3 times. The first time to ensure you understand what is being asked, the second time to get an understanding of what you need to do, and a third time to figure out exactly what maths techniques you should be applying.
* If you are struggling with a question, skip it and come back to it later. Try not to sit getting worked up about a difficult question, it will only waste exam time. Move on and come back to it after you have answered the other questions.
* Take note of the number of marks available. This will give you an indication of how much working out you must show. For example, 1 mark will need an answer only and more marks will need you to show your working out.
* When you’ve finished the exam, go back and check your answers. If you still have time remaining, use it to check your answers and when you have checked your answers check them again.