Maths Worksheet

Calculate the Mean, Median and Range of a Dataset

In this worksheet, students will calculate the mean, median and range of a dataset.

Key Information

Topic	Data and Statistics
Level (1-3)	●●○
Questions	10
Key Stage	KS 3
Year	8
Curriculum Coverage	Statistics
Curriculum Skill	Understand Variables, Representation, Measures and Spread

Name

Date

Introduction

This activity is about calculating the mean, median and range of a dataset.

Remember

To find the **mean**, add up all the values and divide by the total number of values.

The **median** is the middle value, once the numbers have been put in order (lowest number to highest number). If there are two middle numbers, find the mean of these two middle numbers.

The **range** is the difference between the largest and smallest values.

Example

Calculate the mean, median and range of this dataset.

Minimum temperatures in ^{o}C over 1 week:

7, 3.5, 2.5, -1, -4.5, 5, -2

Answer

First, find the total which is 7 + 3.5 + 2.5 - 1 - 4.5 + 5 - 2 = 10.5

Mean = total ÷ number = 10.5 ÷ 7 = **1.5 ^{o}C**

For the median, place them in increasing order:

-4.5, -2, -1, 2.5, 3.5, 5, 7

The middle number is the 4th number in the list.

Median is **2.5 °C**

Range = largest value - smallest value = 7 - -4.5 = 7 + 4.5 = **11 °C**

Did you remember the rule about negative numbers? Two negatives make a positive: **7 -- 4.5 = 7 + 4.5**

Let's try some questions now.

QUESTIONS

Question 1

Here are the masses in kg of 15 parcels:

3.6, 5.9, 1, 4.4, 4.8, 5.9, 5.7, 2.5, 1, 5.7, 4.5, 5.7, 1.2, 2.9, 4.3

Calculate the mean, median and range of the dataset.

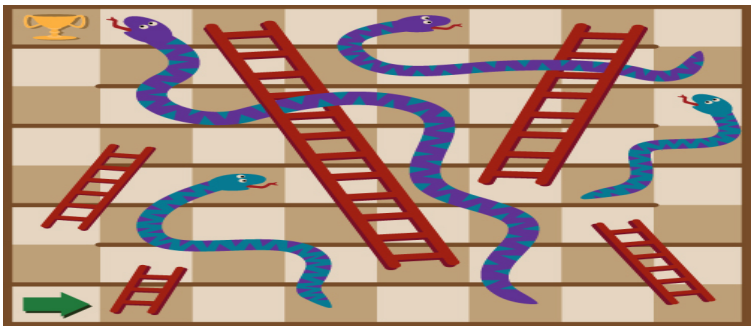
Column A	Column B
The mean	3.94
The median	4.4
The range	4.9

Question 2

The cost of a board game in different shops in £:

4.98, 3.38, 4.85, 4.60, 3.39, 4.31, 3.46, 4.17, 5.31, 4.15

Calculate the mean, median and range of the dataset.



Column A	Column B
The mean	1.93
The median	4.24
The range	4.26

Question 3

Mass of box of chocolates in g:

492, 499, 498, 506, 494, 499, 500, 507, 501, 510, 509, 510, 508, 497, 490

Calculate the mean, median and range of the dataset to the nearest g.

Column A	Column B
The mean	500
The median	501
The range	20

Question 4

The temperature in °C over 2 weeks:

18, 15, 15, 15, 15, 25, 19, 15, 25, 15, 25, 25, 20, 21

Calculate the mean, median and range of the dataset.

Column A	Column B
The mean	10
The median	18.5
The range	19.1

Question 5

Mass in kg of 15 parcels:

4.6, 5.6, 3.2, 3.6, 4, 2.5, 2.8, 5.2, 2.7, 5.4, 3.2, 4.2, 6, 3.2, 3.2

Calculate the mean, median and range of the dataset.

Column A	Column B
The mean	3.6
The median	3.96
The range	3.5

Question 6

Cost of a comic book in different shops in £:

4.98, 4.09, 4.07, 3.31, 5.49, 3.82, 5.42, 5.40, 4.23, 3.78

Calculate the mean, median and range of the dataset.

Column A	Column B
The mean	4.46
The median	2.18
The range	4.16

Question 7

Number of people in 10 buses:

54, 43, 45, 65, 46, 58, 57, 65, 47, 52

Calculate the mean, median and range of this dataset.

Write the mean to one decimal place.

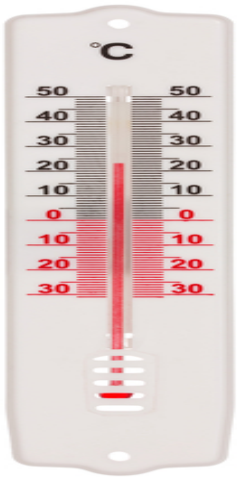
Question 8

Temperatures in ^{o}C over a week:

24.5, 23, 23.4, 21.5, 24, 20.8, 21.7

Calculate the mean, median and range of this dataset.

Write the mean and the range to one decimal place.



Question 9

The cost of a box of candy in different shops in £:

3.95, 3.40, 3.81, 5.18, 4.94, 4.32, 4.69, 4.93, 4.76, 5.29

Calculate the mean, median and range of the dataset.

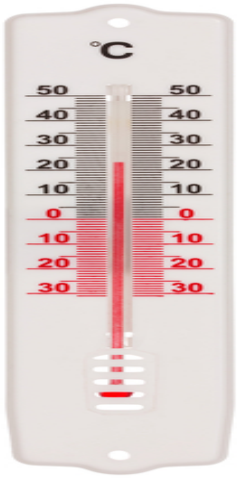
Column A	Column B
The mean	4.53
The median	4.73
The range	1.89

Question 10

Minimum temperatures in ^{o}C over 1 week:

4, 5.5, 2, -1, -3.5, 5, 2

Calculate the mean, median and range of this dataset.


°C
50
40
30
20
10
0
10
20
30
50
40
30
20
10
0
10
20
30

ANSWERS

Answer 1

Correct Answers

Column A	Column B
The mean	3.94
The median	4.4
The range	4.9

Answers Explanation

How did you get on with these calculations? There is a lot of work to do but take it slowly, one step at a time. To find the mean, we need to find the total of all the values and then divide by 15: 591 ÷ 15 = 3.94 To find the median, we need to place the values in order from the smallest to the largest and then find the middle value. The middle value will be the 8th, which is 4.4 The range is the difference between the largest and the smallest value: 5.9 - 1 = 4.9 Great work - let's try another one.

Answer 2

Correct Answers

Column A	Column B
The mean	4.26
The median	4.24
The range	1.93

Answers Explanation

Did you get these ones? To find the mean, find the sum of all the values and divide by 10: 42.6 ÷ 10 = 4.26 To find the median, arrange the values in order and then find the middle value, which will be between the 5th and 6th value: 4.17 + 4.31 = 8.48 ÷ 2 = 4.24 The range is 5.31 - 3.38 = 1.93 Great work!

Answer 3

Correct Answers

Column A	Column B
The mean	501
The median	500
The range	20

Answers Explanation

How are you getting on? The mean: The sum of the values is 7,420. Divide by 15. 7420 ÷ 15 = 501.3 which is 501 to the nearest g. The median = 8th in ordered list is 500 The range is the maximum value - minimum value: 510 - 490 = 20

Answer 4

Correct Answers

Column A	Column B
The mean	19.1
The median	18.5
The range	10

Answers Explanation

Are these getting easier? The mean is the total of all the values divided by 14. 268 ÷ 14 = 19.1 The median is the mean of the 7th and 8th values in an ordered list: 18 + 19 = 37 ÷ 2 = 18.5 Range = maximum - mininmum = 25 - 15 = 10

Answer 5

Correct Answers

Column A	Column B
The mean	3.96
The median	3.6
The range	3.5

Answers Explanation

Did you get this one? The mean is 594 ÷ 15 = 3.96 The median is the 8th value in an ordered list, which is 3.6 The range is the maximum - the minimum: 6 - 2.5 = 3.5

Answer 6

Correct Answers

Column A	Column B
The mean	4.46
The median	4.16
The range	2.18

Answers Explanation

The mean is 44.59 ÷ 10 = 4.46 if rounded to two decimal places. The median is the mean of the 5th and 6th values once they've been placed in order: 4.09 + 4.23 = 8.32 ÷ 2 = 4.16 The range is the biggest - the smallest: 5.49 - 3.21 = 2.18

Answer 7

Correct Answers

Answers Explanation

Keep going - you're doing really well! The mean is the total of 532 ÷ 10 = 53.2 The median is the mean of the 5th and 6th values when placed in order: 52 + 54 = 106 ÷ 2 = 53 The range is the largest - the smallest: 65 - 43 = 22

Answer 8

Correct Answers

Answers Explanation

How did you get on? The mean is the total 158.9 ÷ 7 = 22.7 The median is the 4th value when placed in order, which is 23 The range is the largest - the smallest: 24.5 - 20.8 = 3.7

Answer 9

Correct Answers

Column A	Column B
The mean	4.53
The median	4.73
The range	1.89

Answers Explanation

The mean is 45.27 ÷ 10 = 4. 53 The median is the mean of the 5 and 6th values in the ordered list, which is 4.73 The range is the maximum - the minimum = 5.29 - 3.40 = 1.89

Answer 10

Correct Answers

Answers Explanation

The final question! The hard bit with this one is finding the total of these numbers because they include some negatives! Add the positive numbers first: 4 + 5.5 + 2 + 5 + 2 = 18.5 Then subtract the negative numbers: 18.5 - 4.5 = 14 14 ÷ 7 = 2 The mean is 2 The median is the middle value when they are placed in order. So, that is the 4th value, which is 2. Finally, the range = biggest - smallest: 5.5 - -3.5 This means 5.5 + 3.5 because two negatives make a positive! 5.5 + 3.5 = 9 Brilliant work - that's another activity completed!