Mean, median, mode and range

6 questions | 15 marks

Equivalent correct methods earn the corresponding marks.

1. The data are 4, 6, 6, 8, 11. [5 marks]

(a) Find the mean. [2 marks]

The sum is 35; $35 \div 5 = 7$.

Answer: 7.

(b) Find the median. [1 mark]

The third of five ordered values is 6.

Answer: 6.

(c) Find the mode. [1 mark]

6 occurs twice.

Answer: 6.

(d) Find the range. [1 mark]

$11 - 4 = 7$.

Answer: 7.

2. Find the median of 9, 3, 7, 5, 11, 13. [2 marks]

Order: 3, 5, 7, 9, 11, 13.

The middle values are 7 and 9; $(7 + 9) \div 2 = 8$.

Answer: 8.

3. What is the mode of 2, 4, 6, 8? [2 marks]

Every value occurs once, so no value is more frequent.

Answer: There is no mode.

4. Every score in a dataset increases by 3. What happens to the mean and range? [2 marks]

Adding 3 to every value adds 3 to the equal share.

The new range is $(\text{maximum} + 3) - (\text{minimum} + 3)$, so the added amounts cancel.

Answer: The mean increases by 3; the range stays the same.

5. Four scores have a mean of 9. Three scores are 6, 8 and 10. Find the fourth. [2 marks]

$\text{Required total} = 4 \times 9 = 36.$

$\text{Known total} = 6 + 8 + 10 = 24.$

$\text{Missing score} = 36 - 24 = 12.$

Answer: 12.

6. Find the mean from this frequency table. [2 marks]

Score frequencies

Score	Frequency
2	1
4	2
6	1

Total frequency is $1 + 2 + 1 = 4$.

Weighted sum is $2 \times 1 + 4 \times 2 + 6 \times 1 = 16.$

$\text{Mean} = 16 \div 4 = 4.$

Answer: 4.