



EP.M127 Mean, Median, Mode and Range in Depth

GL ASSESSMENT GL-11PLUS-MATHS · Calculators not allowed · about 55 minutes

Total Marks

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Name: _____ Date: ____ / ____ / ____

Answer ALL questions. Show all your working.

- 1** Find the mean of these three numbers: 4, 6 and 8.

- ☐ A) 5
- ☐ B) 6
- ☐ C) 18
- ☐ D) 7
- ☐ E) 6.5

(Total for Question 1 is 1 mark)

- 2** What is the mode of the list: 3, 5, 5, 7, 9?

- ☐ A) 3
- ☐ B) 5
- ☐ C) 7
- ☐ D) 9
- ☐ E) There is no mode

(Total for Question 2 is 1 mark)

- 3** Find the range of the numbers 12, 4, 9 and 15.

- ☐ A) 3
- ☐ B) 7
- ☐ C) 11
- ☐ D) 15
- ☐ E) 27

(Total for Question 3 is 1 mark)

- 4** Calculate the mean of these five numbers: 3, 7, 4, 8 and 8.

(Total for Question 4 is 2 marks)

- 5 Three of the numbers in a set are 6, 9 and 5. The mean of the four numbers is 7. Find the fourth number.

(Total for Question 5 is 3 marks)

- 6 The ages of seven children are: 7, 9, 7, 8, 7, 10, 9.

(a) State the mode. (1)

(b) Find the median age. (2)

(Total for Question 6 is 3 marks)

- 7 Find the median of these four numbers: 2, 5, 9 and 11.

- ☐ A) 5
- ☐ B) 6
- ☐ C) 7
- ☐ D) 8
- ☐ E) 9

(Total for Question 7 is 1 mark)

- 8 The numbers of books read by six pupils are: 2, 3, 3, 4, 5 and 5. Calculate the mean number of books read, giving your answer to two decimal places.

(Total for Question 8 is 2 marks)

- 9** Three numbers are 7, 9 and 10. A fourth number x is added so that the mean of the four numbers is 9. Find x .

(Total for Question 9 is 2 marks)

- 10** Given the list of scores: 13, 17, 17, 14 and 16, find (a) the range and (b) the mode.

(a) Range (1)

(b) Mode (1)

(Total for Question 10 is 2 marks)

- 11** What is the mean of 2, 4, 6 and 8?

- ☐ A) 4
☐ B) 5
☐ C) 6
☐ D) 10
☐ E) 20

(Total for Question 11 is 1 mark)

- 12** Find the mean and the median of these five decimal numbers: 2.5, 3.0, 4.2, 3.8 and 2.5.

(Total for Question 12 is 3 marks)

- 13** Which list of numbers has no mode?

- ☐ A) 2, 3, 4
☐ B) 1, 1, 2
☐ C) 3, 4, 3
☐ D) 5, 5, 5
☐ E) 6, 7, 6

(Total for Question 13 is 1 mark)

- 14** True or false? The mean of a set of numbers must always be between the smallest and largest values. Give a reason for your answer.

(Total for Question 14 is 1 mark)

- 15** The five numbers are 3, 7, x , 9 and 10. If the median of the five numbers is 8, find x .

(Total for Question 15 is 2 marks)

- 16** For the list 4, 4, 5, 6, 9, find the mode, the range and the mean.

(Total for Question 16 is 3 marks)

- 17** Which of these statements is correct? If two different numbers each appear most often in a data set we call the data:

- ☐ A) Bimodal
- ☐ B) Unimodal
- ☐ C) No mode
- ☐ D) Multisorted
- ☐ E) Equimodal

(Total for Question 17 is 1 mark)

- 18** The numbers 4, 6, 8 and 10 have mean 7. The largest number is increased to 14. Find the new mean.

(Total for Question 18 is 2 marks)

- 19** Class A has 8 pupils with mean score 6. Class B has 6 pupils with mean score 8. Calculate the mean score for all pupils combined, giving your answer to two decimal places.

(Total for Question 19 is 3 marks)

- 20** The mean of four numbers is 8. Three of the numbers are 3, 8, 7 and the fourth is x . Find x .

(Total for Question 20 is 3 marks)

Mark scheme · EP.M127 Mean, Median, Mode and Range in Depth

Question 1

- **B1** option B (mean = 6) cao
- **Answer: B) 6** (mean = $(4+6+8)/3 = 18/3 = 6$).

Question 2

- **B1** option B (mode = 5) cao
- **Answer: B) 5**

Question 3

- **B1** option C (range = $15 - 4 = 11$) cao
- **Answer: C) 11**

Question 4

- **M1** Sum of numbers seen ($3+7+4+8+8 = 30$) or equivalent method
- **A1** Mean $30/5 = 6$ cao
- **Answer: 6** (mean = $30/5 = 6$).

Question 5

- **M1** Equation for total $4 \times 7 = 28$ or equivalent method seen
- **M1** Sum of known numbers subtracted: $28 - (6+9+5) = 28 - 20$
- **A1** Fourth number = 8 cao
- **Answer: 8** (since $4 \times 7 = 28$ and $28 - (6+9+5) = 8$).

Question 6

- (a) **B1** Mode = 7 cao
- (a) **Answer: 7**
- (b) **M1** Correct order or identification of middle position (sort: 7,7,7,8,9,9,10) or note of 4th value
- (b) **A1** Median = 8 cao
- (b) **Answer: 8**

Question 7

- **B1** option C (median = $(5+9)/2 = 7$) cao
- **Answer: C) 7**

Question 8

- **M1** Total seen: $2+3+3+4+5+5 = 22$ or equivalent
- **A1** Mean = $22/6 = 3.666\dots \Rightarrow 3.67$ to 2 d.p. cao
- **Answer: 3.67** (mean = $22/6 = 3.666\dots$, rounded to 3.67).

Question 9

- **M1** Equation for total $4 \times 9 = 36$ or equivalent
- **A1** $x = 36 - (7+9+10) = 10$ cao
- **Answer: 10** (since $4 \times 9 = 36$ and $36 - 26 = 10$).

Question 10

- (a) **B1** Range = $17 - 13 = 4$ cao
- (a) **Answer: 4**
- (b) **B1** Mode = 17 cao
- (b) **Answer: 17**

Question 11

- **B1** option B (mean = $(2+4+6+8)/4 = 20/4 = 5$) cao
- **Answer: B) 5**

Question 12

- **M1** Correct total or mean method seen (sum = 16.0, mean = $16.0/5$)
- **A1** Mean = 3.2 cao
- **B1** Median = 3.0 (sorted: 2.5, 2.5, 3.0, 3.8, 4.2) cao
- **Answer: Mean = 3.2, Median = 3.0**

Question 13

- **B1** option A (all values different so there is no mode) cao
- **Answer: A) 2, 3, 4**

Question 14

- **B1** Statement true with correct reason (mean is an average of values so weighted between min and max) cao
- **Answer: True. The mean is an average of the values, so it lies between the smallest and largest number.**

Question 15

- **M1** Middle (3rd) value identified and set equal to 8 (so x must be the middle value)
- **A1** $x = 8$ cao
- **Answer: 8 (x must be the third number when sorted, so $x = 8$).**

Question 16

- **M1** Method for mean seen (sum $4+4+5+6+9 = 28$) or equivalent
- **A1** Mean = $28/5 = 5.6$ cao
- **B1** Mode = 4 and Range = $9 - 4 = 5$ (either may be awarded as independent correct) cao
- **Answer: Mode = 4, Range = 5, Mean = 5.6**

Question 17

- **B1** option A (bimodal is the correct term) cao
- **Answer: A) Bimodal**

Question 18

- **M1** Total before and after seen (old total 28, new total $28 + 4 = 32$) or equivalent
- **A1** New mean = $32/4 = 8$ cao
- **Answer: 8 (new mean = $32/4 = 8$).**

Question 19

- **M1** Totals for each class found: $8*6 = 48$ and $6*8 = 48$
- **M1** Combined total and division seen: $(48+48)/(8+6) = 96/14$
- **A1** Combined mean = $96/14 = 6.857142... \Rightarrow 6.86$ to 2 d.p. cao
- **Answer: 6.86 (combined mean = $96/14$ approx 6.857142..., rounded to 6.86).**

Question 20

- **M1** Total required for mean seen: $4 * 8 = 32$ or equivalent
- **M1** Subtract sum of known numbers: $32 - (3+8+7) = 32 - 18$
- **A1** $x = 14$ cao
- **Answer: 14 (since $4*8 = 32$ and $32 - (3+8+7) = 14$).**