2.103 Mean, Median, Mode and Range in Depth: Test Pack

Total Marks

GL ASSESSMENT GL-11PLUS-MATHS · Calculators not allowed · about 60 minutes

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

---

2 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.

(1)

---

3 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

---

4 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

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5 Given the list of scores: 13, 17, 17, 14 and 16.

(a) Find the range. **(1)**

.....

(b) Find the mode. **(1)**

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6 Here are 4 numbers: 65, 43, 103, 129. What is the mean?

- ☐ A) 340
- ☐ B) 86
- ☐ C) 68
- ☐ D) 84
- ☐ E) 85

---

7 Here are some numbers: 34, 35, 16, 30, 2, 22, 22, 28, 9. What is the mode?

- ☐ A) 35
- ☐ B) 21
- ☐ C) 2
- ☐ D) 22
- ☐ E) 23

---

8 Here are 4 numbers: 21, 17, 22, 16. What is the mean?

- ☐ A) 18
- ☐ B) 20
- ☐ C) 19
- ☐ D) 76
- ☐ E) 15.2

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9 The mean score in 8 games is 39. After one more game the mean score is 36. What was the score in the last game?

- [ ] A) 11
- [ ] B) 36
- [ ] C) 324
- [ ] D) 12
- [ ] E) 63

---

10 Here are some numbers: 78, 14, 5, 98, 5, 16, 59, 9. What is the mode?

- [ ] A) 15
- [ ] B) 98
- [ ] C) 6
- [ ] D) 4
- [ ] E) 5

---

11 What is the median of these 9 numbers? 4, 58, 97, 84, 104, 11, 90, 79, 45

- [ ] A) 58
- [ ] B) 84
- [ ] C) 78
- [ ] D) 79
- [ ] E) 104

---

12 The mean score in 5 tests is 13. After one more test the mean score is 12. What was the score in the last test?

- [ ] A) 12
- [ ] B) 8
- [ ] C) 18
- [ ] D) 7
- [ ] E) 72

---

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

(2)

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14 What is the median of these 9 numbers? 8, 13, 31, 30, 24, 20, 7, 23, 26

- ☐ A) 20
- ☐ B) 230
- ☐ C) 2.3
- ☐ D) 23
- ☐ E) 24

---

15 The values for the ages of members of a swimming club are 14, 13, 5, 12. What is the mean?

- ☐ A) 8.8
- ☐ B) 11
- ☐ C) 9
- ☐ D) 12.5
- ☐ E) 44

---

16 Here are some numbers: 15, 28, 19, 11, 27, 6, 4, 34, 1, 19. What is the range?

- ☐ A) 34
- ☐ B) 1
- ☐ C) 17
- ☐ D) 33
- ☐ E) 16.4

---

17 What is the median of these 9 numbers? 38, 37, 40, 39, 17, 18, 19, 33, 31

- ☐ A) 17
- ☐ B) 37
- ☐ C) 32
- ☐ D) 31
- ☐ E) 33

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18 The mean score in 4 tests is 20. After one more test the mean score is 24. What was the score in the last test?

- ☐ A) 41
- ☐ B) 40
- ☐ C) 120
- ☐ D) 24
- ☐ E) 16

---

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

(2)

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20 What is the median of these 8 numbers? 98, 51, 41, 87, 32, 1, 75, 93

- ☐ A) 59.5
- ☐ B) 75
- ☐ C) 59.75
- ☐ D) 62
- ☐ E) 63

---

21 Here are 5 numbers: 19, 31, 29, 47, 19. What is the mean?

- ☐ A) 145
- ☐ B) 36.25
- ☐ C) 30
- ☐ D) 29
- ☐ E) 28

---

22 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.

(3)

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23 Here are some numbers: 1, 92, 94, 92, 7, 64, 62, 13. What is the mode?

- ☐ A) 2
- ☐ B) 93
- ☐ C) 94
- ☐ D) 1
- ☐ E) 92

---

24 What is the median of these 9 numbers? 82, 108, 4, 108, 119, 10, 98, 64, 69

- ☐ A) 98
- ☐ B) 119
- ☐ C) 82
- ☐ D) 69
- ☐ E) 81

---

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

(3)

---

26 Here are some numbers: 29, 21, 11, 2, 15, 31, 28, 2, 8. What is the range?

- ☐ A) 31
- ☐ B) 2
- ☐ C) 15
- ☐ D) 33
- ☐ E) 29

---

27 Here are 4 numbers: 23, 14, 30, 13. What is the mean?

- ☐ A) 18.5
- ☐ B) 80
- ☐ C) 21
- ☐ D) 16
- ☐ E) 20

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28 The mean score in 6 games is 22. After one more game the mean score is 20. What was the score in the last game?

- [ ] A) 7
- [ ] B) 140
- [ ] C) 9
- [ ] D) 8
- [ ] E) 20

---

29 Here are 4 numbers: 11, 17, 7, 5. What is the mean?

- [ ] A) 11
- [ ] B) 40
- [ ] C) 12
- [ ] D) 9
- [ ] E) 10

---

30 Here are 6 numbers: 18, 34, 33, 47, 24, 24. What is the mean?

- [ ] A) 29
- [ ] B) 28.5
- [ ] C) 30
- [ ] D) 31
- [ ] E) 180

---

31 Callum scores 36, 21, 14, 37, 41 in 5 games. Callum wants a mean score of 28 over 6 games. What must Callum score in the last game?

- [ ] A) 19
- [ ] B) 47
- [ ] C) 28
- [ ] D) 168
- [ ] E) 9

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32 The mean score in 3 games is 26. After one more game the mean score is 29. What was the score in the last game?

- [ ] A) 29
- [ ] B) 37
- [ ] C) 116
- [ ] D) 38
- [ ] E) 9

---

33 Here are some numbers: 38, 27, 38, 32, 13, 15. What is the range?

- [ ] A) 13
- [ ] B) 51
- [ ] C) 25
- [ ] D) 29.5
- [ ] E) 38

---

34 Mei scores 15, 7, 21, 6, 16, 6, 15 in 7 games. Mei wants a mean score of 12 over 8 games. What must Mei score in the last game?

- [ ] A) 96
- [ ] B) 10
- [ ] C) 9
- [ ] D) 12
- [ ] E) 11

---

35 The mean score in 5 games is 24. After one more game the mean score is 27. What was the score in the last game?

- [ ] A) 27
- [ ] B) 15
- [ ] C) 162
- [ ] D) 9
- [ ] E) 42

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36 What is the median of these 8 numbers? 74, 90, 56, 54, 115, 91, 92, 33

- ☐ A) 82
- ☐ B) 84.5
- ☐ C) 90
- ☐ D) 81
- ☐ E) 75.625

---

37 Here are some numbers: 39, 16, 100, 69, 20, 103, 100. What is the mode?

- ☐ A) 99
- ☐ B) 103
- ☐ C) 16
- ☐ D) 2
- ☐ E) 100

---

38 Noah scores 26, 22, 44 in 3 games. Noah wants a mean score of 31 over 4 games. What must Noah score in the last game?

- ☐ A) 31
- ☐ B) 63
- ☐ C) 124
- ☐ D) 32
- ☐ E) 37

---

39 What is the median of these 8 numbers? 2, 119, 114, 104, 66, 15, 66, 57

- ☐ A) 65
- ☐ B) 67.875
- ☐ C) 67
- ☐ D) 66
- ☐ E) 85

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40 Here are some numbers: 69, 35, 105, 80, 117, 63, 48, 13, 80, 22, 19. What is the mode?

- ☐ A) 117
- ☐ B) 13
- ☐ C) 2
- ☐ D) 80
- ☐ E) 63

---

41 What is the median of these 6 numbers? 6, 2, 110, 14, 4, 84

- ☐ A) 6
- ☐ B) 9
- ☐ C) 11
- ☐ D) 62
- ☐ E) 10

---

42 Here are some numbers: 32, 18, 8, 15, 16, 17, 1, 20, 18. What is the mode?

- ☐ A) 1
- ☐ B) 32
- ☐ C) 17
- ☐ D) 2
- ☐ E) 18

---

43 Kofi scores 43, 37, 16 in 3 games. Kofi wants a mean score of 27 over 4 games. What must Kofi score in the last game?

- ☐ A) 27
- ☐ B) 12
- ☐ C) 13
- ☐ D) 108
- ☐ E) 15

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44 Here are 5 numbers: 14, 16, 36, 19, 30. What is the mean?

- ☐ A) 19
- ☐ B) 115
- ☐ C) 23
- ☐ D) 28.75
- ☐ E) 22

---

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

(a) State the mode. **(1)**

(b) Find the median age. **(2)**

.....

---

46 Here are 8 numbers: 46, 115, 81, 53, 109, 76, 86, 82. What is the mean?

- ☐ A) 648
- ☐ B) 81.5
- ☐ C) 81
- ☐ D) 80
- ☐ E) 69

---

47 Here are some numbers: 11, 1, 17, 18, 11, 27, 37, 32, 19. What is the range?

- ☐ A) 1
- ☐ B) 35
- ☐ C) 18
- ☐ D) 36
- ☐ E) 37

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48 Arjun scores 23, 16, 11, 24, 23, 10, 16 in 7 games. Arjun wants a mean score of 19 over 8 games. What must Arjun score in the last game?

- ☐ A) 34
- ☐ B) 29
- ☐ C) 19
- ☐ D) 48
- ☐ E) 152

---

49 Here are 5 numbers: 22, 52, 18, 44, 44. What is the mean?

- ☐ A) 180
- ☐ B) 44
- ☐ C) 30
- ☐ D) 36
- ☐ E) 37

---

50 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.

(2)

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51 Here are 4 numbers: 33, 39, 40, 48. What is the mean?

- ☐ A) 32
- ☐ B) 40
- ☐ C) 160
- ☐ D) 39
- ☐ E) 39.5

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Mark scheme · 2.103 Mean, Median, Mode and Range in Depth: Test Pack

A correct answer earns full marks unless the question asks for working, a method, proof or explanation.

Question 1

option B (mean = 6) cao **B1**

Answer: B) 6 (mean = (4+6+8)/3 = 18/3 = 6).

Question 2

Statement true with correct reason (mean is an average of values so weighted between min and max) cao **B1**

Answer: True. The mean is an average of the values, so it lies between the smallest and largest number.

Question 3

option A (bimodal is the correct term) cao **B1**

Answer: A) Bimodal

Question 4

option B (mode = 5) cao **B1**

Answer: B) 5

Question 5

(a) Range = 17 - 13 = 4 cao **B1**

(a) Answer: 4

(b) Mode = 17 cao **B1**

(b) Answer: 17

Question 6

correct option E (85) cao **B1**

Answer: E) 85

Question 7

correct option D (22) cao **B1**

Answer: D) 22

Question 8

correct option C (19) cao **B1**

Answer: C) 19

Question 9

correct option D (12) cao **B1**

Answer: D) 12

Question 10

correct option E (5) cao **B1**

Answer: E) 5

Question 11

correct option D (79) cao **B1**

Answer: D) 79

Question 12

correct option D (7) cao **B1**

Answer: D) 7

Question 13

Middle (3rd) value identified and set equal to 8 (so x must be the middle value) **M1**

x = 8 cao **A1**

Answer: 8 (x must be the third number when sorted, so x = 8).

Question 14

correct option D (23) cao **B1**

Answer: D) 23

Question 15

correct option B (11) cao **B1**

Answer: B) 11

Question 16

correct option D (33) cao **B1**

Answer: D) 33

Question 17

correct option E (33) cao **B1**

Answer: E) 33

Question 18

correct option B (40) cao **B1**

Answer: B) 40

Question 19

Total before and after seen (old total 28, new total 28 + 4 = 32) or equivalent **M1**

New mean = 32/4 = 8 cao **A1**

Answer: 8 (new mean = 32/4 = 8).

Question 20

correct option E (63) cao **B1**

Answer: E) 63

Question 21

correct option D (29) cao **B1**

Answer: D) 29

Question 22

Totals for each class found: 8*6 = 48 and 6*8 = 48 **M1**

Combined total and division seen: (48+48)/(8+6) = 96/14 **M1**

Combined mean = 96/14 = 6.857142... => 6.86 to 2 d.p. cao **A1**

Answer: 6.86 (combined mean = 96/14 approx 6.857142..., rounded to 6.86).

Question 23

correct option E (92) cao **B1**

Answer: E) 92

Question 24

correct option C (82) cao **B1**

Answer: C) 82

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Question 25

Total required for mean seen: 4 * 8 = 32 or equivalent **M1**

Subtract sum of known numbers: 32 - (3+8+7) = 32 - 18 **M1**

x = 14 cao **A1**

Answer: 14 (since 4*8 = 32 and 32 - (3+8+7) = 14).

Question 26

correct option E (29) cao **B1**

Answer: E) 29

Question 27

correct option E (20) cao **B1**

Answer: E) 20

Question 28

correct option D (8) cao **B1**

Answer: D) 8

Question 29

correct option E (10) cao **B1**

Answer: E) 10

Question 30

correct option C (30) cao **B1**

Answer: C) 30

Question 31

correct option A (19) cao **B1**

Answer: A) 19

Question 32

correct option D (38) cao **B1**

Answer: D) 38

Question 33

correct option C (25) cao **B1**

Answer: C) 25

Question 34

correct option B (10) cao **B1**

Answer: B) 10

Question 35

correct option E (42) cao **B1**

Answer: E) 42

Question 36

correct option A (82) cao **B1**

Answer: A) 82

Question 37

correct option E (100) cao **B1**

Answer: E) 100

Question 38

correct option D (32) cao **B1**

Answer: D) 32

Question 39

correct option D (66) cao **B1**

Answer: D) 66

Question 40

correct option D (80) cao **B1**

Answer: D) 80

Question 41

correct option E (10) cao **B1**

Answer: E) 10

Question 42

correct option E (18) cao **B1**

Answer: E) 18

Question 43

correct option B (12) cao **B1**

Answer: B) 12

Question 44

correct option C (23) cao **B1**

Answer: C) 23

Question 45

(a) Mode = 7 cao **B1**

(a) Answer: 7

(b) Correct order or identification of middle position (sort: 7,7,7,8,9,9,10) or note of 4th value **M1**

(b) Median = 8 cao **A1**

(b) Answer: 8

Question 46

correct option C (81) cao **B1**

Answer: C) 81

Question 47

correct option D (36) cao **B1**

Answer: D) 36

Question 48

correct option B (29) cao **B1**

Answer: B) 29

Question 49

correct option D (36) cao **B1**

Answer: D) 36

Question 50

Equation for total 4*9 = 36 or equivalent **M1**

x = 36 - (7+9+10) = 10 cao **A1**

Answer: 10 (since 4*9 = 36 and 36 - 26 = 10).

Question 51

correct option B (40) cao **B1**

Answer: B) 40

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