



S12-test Median Quartiles and IQR: Test Pack

EDEXCEL 1ST0 · Calculator allowed · about 15 minutes

Total Marks

Name: _____ Date: ____ / ____ / ____

Answer ALL questions. Show all your working.

- 1** For each statement about the median, quartiles and interquartile range (IQR), write down whether it is True or False.

(i) The median is always one of the values in the original data set. (1)

(ii) The interquartile range is found by working out the upper quartile minus the lower quartile. (1)

(iii) Roughly half of the data values lie between the lower quartile and the upper quartile. (1)

(Total for Question 1 is 3 marks)

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- 2** A student is deciding whether to use the range or the interquartile range (IQR) to describe the spread of a set of exam marks. One mark in the data set is much lower than all the others (an outlier).

(Total for Question 2 is 2 marks)

3 The marks, out of 20, of 12 students in a quiz are shown below, already arranged in order:

6, 9, 10, 11, 12, 13, 13, 14, 15, 16, 17, 19

(a) Find the lower quartile. (1)

(b) Find the median. _____ (1)

(c) Find the upper quartile. _____ (1)

(d) Calculate the interquartile range. _____ (1)

(Total for Question 3 is 4 marks)

4 Two classes sat the same maths test, out of 100. The ordered scores were:

Class A: 45, 52, 58, 61, 63, 67, 70, 72, 78, 85

Class B: 50, 55, 60, 62, 64, 66, 68, 70, 74, 90

(a) Calculate the interquartile range for Class A. (2)

(b) Calculate the interquartile range for Class B. _____ (2)

(c) Both classes have a median score of 65. Compare the spread of test scores in Class A and Class B. _____ (2)

(Total for Question 4 is 6 marks)

Mark scheme · S12-test Median Quartiles and IQR: Test Pack

Question 1

- (i) **B1** False cao
- (i) **Answer: False**
- (ii) **B1** True cao
- (ii) **Answer: True**
- (iii) **B1** True cao
- (iii) **Answer: True**

Question 2

- **B1** states that the range would be affected by (increased by/distorted by) the outlier
- **B1** states that the IQR ignores the top and bottom quarters of the data, so is not affected by the outlier and gives a fairer/more representative measure of spread
- **Answer: The IQR, because it is not affected by the outlier.**

Question 3

- (a) **B1** 10.5 cao
- (a) **Answer: 10.5**
- (b) **B1** 13 cao
- (b) **Answer: 13**
- (c) **B1** 15.5 cao
- (c) **Answer: 15.5**
- (d) **B1** 5 cao, ft from (a) and (c)
- (d) **Answer: 5**

Question 4

- (a) **M1** LQ = 58 (3rd value, since $10/4=2.5$ rounds up to 3rd) and UQ = 72 (8th value, since $3 \times 10/4=7.5$ rounds up to 8th)
- (a) **A1** 14 cao
- (a) **Answer: 14**
- (b) **M1** LQ = 60 (3rd value) and UQ = 70 (8th value)
- (b) **A1** 10 cao
- (b) **Answer: 10**
- (c) **B1** states the medians are equal (both 65), so on average the classes performed the same
- (c) **B1** states Class A has a larger IQR (14 compared with 10), so Class A's scores are more spread out/varied, while Class B's scores are more consistent
- (c) **Answer: Same median (65); Class A more spread out (IQR 14) than Class B (IQR 10), which is more consistent.**