3.14 Median Quartiles and IQR: 30-minute Pack

EDEXCEL 1ST0 · Calculator allowed · about 30 minutes

Total Marks

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 Here is a stem and leaf diagram, written out in rows, showing the lengths, in centimetres, of 11 fish caught in a competition.

1	**4 6**
2	5
3	1 2 7 8
4	1 2 4 4

Key: 3 | 4 means 34

(a) Find the median.
(b) Work out the range.
(c) How many of the values are greater than 32?

(Total for Question 1 is 6 marks)

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2 Here are the number of goals scored by a hockey team in each of 11 matches.

2, 6, 11, 3, 4, 7, 1, 9, 8, 10, 2

Use position $(n + 1)/4$ for the lower quartile and $3(n + 1)/4$ for the upper quartile, where n is the number of values.

(a) Find the median.
(b) Work out the interquartile range.
(c) Work out the range.

(Total for Question 2 is 5 marks)

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3 The table shows the number of books read in a month for 39 students.

Books read	Frequency
1	7
2	7
3	10
4	1
5	7
6	7

(a) Work out the cumulative frequency for each value.
(b) Find the median, the lower quartile and the upper quartile.
(c) Work out the interquartile range.

Use position $(n + 1)/4$ and $3(n + 1)/4$ for the quartiles.

(Total for Question 3 is 4 marks)

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4 Here are the number of customers served in a cafe in each of 15 hours.

31, 41, 20, 24, 40, 13, 10, 32, 11, 37, 10, 36, 48, 18, 43

Use position $(n + 1)/4$ for the lower quartile and $3(n + 1)/4$ for the upper quartile, where n is the number of values.

(a) Find the lower quartile.
(b) Find the upper quartile.
(c) Work out the interquartile range.

(Total for Question 4 is 6 marks)

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5 The table shows the number of goals scored in a match for 59 matches.

Goals	Frequency
0	7
1	4
2	12
3	11
4	13
5	5
6	7

(a) Work out the cumulative frequency for each value.
(b) Find the median, the lower quartile and the upper quartile.
(c) Work out the interquartile range.

Use position $(n + 1)/4$ and $3(n + 1)/4$ for the quartiles.

(Total for Question 5 is 4 marks)

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6 Here is a stem and leaf diagram, written out in rows, showing the lengths, in centimetres, of 11 fish caught in a competition.

1	**5 7**
2	2 4 6 6 9
3	
4	4 5 6 8

Key: 3 | 4 means 34

(a) Write down the mode.
(b) Find the median.
(c) Work out the range.

(Total for Question 6 is 5 marks)

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Mark scheme · 3.14 Median Quartiles and IQR: 30-minute Pack

Question 1

identifies the middle position (6th value)	**M1**
37 cao	**A1**
largest minus smallest	**M1**
30 cao	**A1**
counts leaves above 32	**M1**
6 cao	**A1**

Answer: (a) 37; (b) 30; (c) 6

Question 2

values put in order	**M1**
6 cao	**A1**
upper quartile minus lower quartile with both found	**M1**
7 cao	**A1**
10 cao	**B1**

Answer: (a) 6; (b) 7; (c) 10

Question 3

cumulative frequencies 7, 14, 24, 25, 32, 39 cao	**B1**
uses cumulative frequency to locate a quartile position	**M1**
median 3, lower quartile 2, upper quartile 5 cao	**A1**
interquartile range 3 cao	**A1**

Answer: (a) 7, 14, 24, 25, 32, 39; (b) 3, 2, 5; (c) 3

Question 4

values in order; position 4 used	**M1**
13 cao	**A1**
values in order; position 12 used	**M1**
40 cao	**A1**
upper quartile minus lower quartile with both found	**M1**
27 cao	**A1**

Answer: (a) 13; (b) 40; (c) 27

Question 5

cumulative frequencies 7, 11, 23, 34, 47, 52, 59 cao	**B1**
uses cumulative frequency to locate a quartile position	**M1**
median 3, lower quartile 2, upper quartile 4 cao	**A1**
interquartile range 2 cao	**A1**

Answer: (a) 7, 11, 23, 34, 47, 52, 59; (b) 3, 2, 4; (c) 2

Question 6

26 cao	**B1**
identifies the middle position (6th value)	**M1**
26 cao	**A1**
largest minus smallest	**M1**
33 cao	**A1**

Answer: (a) 26; (b) 26; (c) 33

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