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GCSE Exam Questions

Interquartile Range | Statistics

GCSE Exam Questions: Interquartile Range

1) The following data shows the English test results of 11 students:

15, 16, 19, 25, 26, 27, 28, 28, 30, 35, 36

Work out the interquartile range.

(2 marks)

2) **(a)** This table shows the ages of 25 members of a club in years.

Find the lower and upper quartiles.

20	21	25	26	30
34	35	36	36	37
39	40	40	41	42
45	46	46	50	53
62	64	65	65	82

(2)

(b) Hence, find the interquartile range.

(1)

(c) Why should the interquartile range be used to describe the spread of this data rather than the range?

(1)

(4 marks)

GCSE Exam Questions: Interquartile Range

3) **(a)** Tom records the number of cars passing his school at five-minute intervals:

Number of cars	Frequency
0	2
1	3
2	12
3	17
4	5
5+	0

Find the median number of cars.

(1)

(b) Find the interquartile range.

(2)

(c) Work out the total number of cars that passed Tom's school.

(2)

(5 marks)

GCSE Exam Questions: Interquartile Range Answers

<table>
<tr><th></th><th>Question</th><th>Answer</th><th>Marks</th></tr>
<tr><td>1)</td><td>The following data shows the English test results of 11 students:

15, 16, 19, 25, 26, 27,
28, 28, 30, 35, 36

Work out the interquartile range.</td><td>$LQ = 19$ or $UQ = 30$

$IQR = 30 - 19 = 11$</td><td>(1)

(1)</td></tr>
<tr><td>2) (a)</td><td>This table shows the ages of 25 members of a club in years.

Find the lower and upper quartiles.

<table><tr><td>20</td><td>21</td><td>25</td><td>26</td><td>30</td></tr><tr><td>34</td><td>35</td><td>36</td><td>36</td><td>37</td></tr><tr><td>39</td><td>40</td><td>40</td><td>41</td><td>42</td></tr><tr><td>45</td><td>46</td><td>46</td><td>50</td><td>53</td></tr><tr><td>62</td><td>64</td><td>65</td><td>65</td><td>82</td></tr></table></td><td>(a) $LQ = 6.5^{th}$
$6^{th} = 34$, $7^{th} = 35$
so $LQ = 34.5$

$UQ = 19.5^{th}$
$19^{th} = 50$, $20^{th} = 53$
so $UQ = 51.5$</td><td>(1)

(1)</td></tr>
<tr><td>(b)</td><td>Hence, find the interquartile range.</td><td>(b) $IQR = 51.5 - 34.5 = 17$</td><td>(1)</td></tr>
<tr><td>(c)</td><td>Why should the interquartile range be used to describe the spread of this data rather than the range?</td><td>(c) IQR should be used because the data set contains an extreme value/outlier</td><td>(1)</td></tr>
</table>

GCSE Exam Questions: Interquartile Range Answers

<table>
<tr><th></th><th>Question</th><th>Answer</th><th>Marks</th></tr>
<tr><td>3)

(a)</td><td>Tom records the number of cars passing his school at five-minute intervals:

<table><tr><th>Number of cars</th><th>Frequency</th></tr><tr><td>0</td><td>2</td></tr><tr><td>1</td><td>3</td></tr><tr><td>2</td><td>12</td></tr><tr><td>3</td><td>17</td></tr><tr><td>4</td><td>5</td></tr><tr><td>5+</td><td>0</td></tr></table>
Find the median number of cars.</td><td>(a) $n = 39$
$\text{Median} = \frac{40^{th}}{2} = 20^{th} = 3$</td><td>(1)</td></tr>
<tr><td>(b)</td><td>Find the interquartile range.</td><td>$LQ = \frac{40^{th}}{4} = 10^{th} = 2$ or
$UQ = 30^{th} = 3$
$IQR = 3 - 2 = 1$</td><td>(1)
(1)</td></tr>
<tr><td>(c)</td><td>Work out the total number of cars that passed Tom’s school.</td><td>$(0 \times 2) + (1 \times 3) + (2 \times 12) + \ldots$
$= 98$</td><td>(1)
(1)</td></tr>
</table>

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