Oxford Revise | AQA GCSE Maths Higher | Answers

Chapter 29 Tables, averages, and range

<table>
<tr><th>Question</th><th>Answer</th><th>Extra information</th><th>Marks</th></tr>
<tr><td>29.1</td><td>$63 \times 10 = 630$, the total of 10 of the numbers
$51 \times 4 = 204$, the total of 4 of the numbers
$630 - 204 = 426$, the total of the other six numbers
The mean of these six numbers is $426 \div 6 = 71$</td><td>630 or 204
Subtracting the total of the four numbers from the total of the ten numbers.
Correct answer</td><td>1
1
1</td></tr>
<tr><td>29.2 (a)</td><td>$\frac{71+1}{2} = 36$
The median is the 36th value
This is in the class $30 < t \leq 35$</td><td>$\frac{71+1}{2} = 36$
$30 < t \leq 35$</td><td>1
1</td></tr>
<tr><td>29.2 (b)</td><td><table><tr><th>Time (t minutes)</th><th>Frequency</th><th>Midpoint</th><th>Frequency × midpoint</th></tr><tr><td>$20 < t \leq 25$</td><td>10</td><td>22.5</td><td>225</td></tr><tr><td>$25 < t \leq 30$</td><td>17</td><td>27.5</td><td>467.5</td></tr><tr><td>$30 < t \leq 35$</td><td>24</td><td>32.5</td><td>780</td></tr><tr><td>$35 < t \leq 40$</td><td>11</td><td>37.5</td><td>412.5</td></tr><tr><td>$40 < t \leq 45$</td><td>9</td><td>42.5</td><td>382.5</td></tr><tr><td></td><td>71</td><td></td><td>2267.5</td></tr></table>Estimate for the mean $= 2267.5 \div 71 = 31.93\ldots$
or 32 minutes, to the nearest minute</td><td>Multiplying frequencies by your midpoints
Dividing the final column total by 71
Correct answer to the nearest minute</td><td>1
1
1</td></tr>
<tr><td>29.2 (c)</td><td>The actual data values are not known, so it’s only possible to estimate the mean finishing time.</td><td>Clear explanation</td><td>1</td></tr>
</table>

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<tr><th>Question</th><th>Answer</th><th>Extra information</th><th>Marks</th></tr>
<tr><td>29.3</td><td>The midpoint of $0 < x \leq 4$ is 2
The midpoint of $4 < x \leq 8$ is 6
<table><tr><th>Score (x)</th><th>Frequency</th><th>Midpoint</th><th>Frequency × midpoint</th></tr><tr><td>$0 < x \leq 4$</td><td>$3y$</td><td>2</td><td>$6y$</td></tr><tr><td>$4 < x \leq 8$</td><td>$7y$</td><td>6</td><td>$42y$</td></tr><tr><td></td><td>$10y$</td><td></td><td>$48y$</td></tr></table>Estimate for the mean $= 48y \div 10y = 4.8$</td><td>Multiplying frequencies by midpoints
Dividing final column total by the frequency total
Correct answer of 4.8</td><td>1

1
1</td></tr>
<tr><td>29.4</td><td>There are 7 data values
Lower quartile is the value in position $\frac{1}{4}(7+1) = 2$
This is the missing card
Upper quartile is the value in position $\frac{3}{4}(7+1) = 6$
In 6th position, the card value is 8
The IQR $= 3$, so UQ – LQ $= 3$
8 – LQ $= 3$
Thus, the LQ $= 5$, which means the missing card’s value is 5</td><td>Finding the IQR via the LQ and UQ
Correct answer</td><td>1
1</td></tr>
<tr><td>29.5 (a)</td><td>First arrange the data in ascending order:
$63 \;\; 76 \;\; 76 \;\; 78 \;\; 82 \;\; 85 \;\; 87 \;\; 90 \;\; 95 \;\; 99 \;\; 100 \;\; 123$
There are 12 data values
LQ will be the mean of the 3rd and 4th values $= 77$
Median will be the mean of the 6th and 7th values $= 86$
UQ will be the mean of the 9th and 10th values $= 97$</td><td>1 mark for two of UQ, LQ and median
1 mark for all three</td><td>1
1</td></tr>
</table>

Question	Answer	Extra information	Marks
29.5 (b)	It's true that team A have the highest score, but team B has more scores of 100 or more; team A has half of their scores below 86 whereas team B has only two scores less than 86. Team B's median score is also significantly higher than team A's median score. Josh is not correct.	Any two valid observations of the data	2
29.5 (c)	Team A's range is 60 and team B's range is just 35. The IQR for team A is $97 - 77 = 20$, whereas the IQR for team B is $102 - 88.5 = 13.5$ Taisa is correct.	Any two valid observations of the data	2
29.6	Combined mean $= \dfrac{(96 \times 67.5) + (90 \times 71.2)}{96 + 90}$ $= 69.29 < 70$ No, the mean mark is not greater than the pass mark.		2 1 1
29.7	Either determine the unit cost of grass seed and multiply by the area of the lawn, or, like below, create a ratio relationship: $\dfrac{£4.99}{3.66\ \text{m}^2} = \dfrac{x}{32\ \text{m}^2}$ $x = \dfrac{32 \times 4.99}{3.66} = £43.63\ (2\ \text{dp})$ = £44 (to nearest £)	Unit cost or ratio established Arrive at the correct multiplication Correct answer	1 1 1

Question	Answer	Extra information	Marks
29.8	If the angles sum to 720, then $(n-2)\times 180 = 720$, where n is the number of sides. Thus n = 6 and the shape is a hexagon. Six sides, with the smallest 20 and the largest 220, and four angles in between them in the sequence. That means there are five "jumps" from 20 to 220. $\frac{220-20}{5} = 40$ The common difference is 40, so the six angles are: $20°$, $60°$, $100°$, $140°$, $180°$ and $220°$	Find the name / number of sides of the polygon Attempt to identify the arithmetic sequence Fully correct answer	1 1 1