

Oxford Revise | Edexcel GCSE Maths Higher | Answers

Chapter 30 Charts and graphs

Question	Answer	Extra information	Marks
30.1 (a)	Correctly created graph plotting the 7 data points, and line segments connecting them	Data points correctly plotted Line segments connecting data points added	1 1
30.1 (b)	The general trend is a steady increase in profit over time		1
30.1 (c)	The vertical axis starts at 3000, not 0		1
30.2 (a)	The general trend is a decrease in attendance over time		1
30.2 (b)	Weeks 1 and 4		1
30.2 (c)	The predicted attendance in Week 9 will be between 100 and 200 people.	Accept anything between 100 and 200 because it might remain constant between weeks 8 and 9 (as it was between weeks 6 and 7), or it may decrease. One thing that this graph doesn't provide for is any attendance value less than 100	1
30.3 (a)	The outlier does not follow the general trend of the rest of the data		1
30.3 (b)	Modest negative correlation		1

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30.3 (c)	Line of best fit drawn such that half the data points are above it, and half are below. One such line, using dynamic geometry software, is $y = -0.77x + 35.28$		1												
30.3 (d)	26%		1												
30.3 (e)	The gradient of the line of best fit is -0.77 , so that means for every 1% increase in the gradient, the speed decreases by 0.77 m/s	Attempts to use the gradient Correct answer, within reasonable tolerance	1 1												
30.3 (f)	The gradient is far outside the data set and thus may not be very reliable.		1												
30.4	There is correlation between the two events, but no causation.		1												
30.5	Number of tulips = $\frac{117}{360} \times 400 = 130$ So, the number of hyacinths = $400 - 180 - 130 = 90$ Missing pie chart values are: $\frac{180}{400} \times 360 = 162^\circ$ for daffodils, and $\frac{90}{400} \times 360 = 81^\circ$ for hyacinths.	Correct number of tulips Correct number of hyacinths Correctly completed pie chart	1 1 1												
30.6 (a)	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;">Mass (m kg)</th> <th style="text-align: center;">Frequency</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">$0 < m \leq 5$</td> <td style="text-align: center;">4</td> </tr> <tr> <td style="text-align: center;">$5 < m \leq 10$</td> <td style="text-align: center;">12</td> </tr> <tr> <td style="text-align: center;">$10 < m \leq 15$</td> <td style="text-align: center;">6</td> </tr> <tr> <td style="text-align: center;">$15 < m \leq 20$</td> <td style="text-align: center;">18</td> </tr> <tr> <td style="text-align: center;">$20 < m \leq 25$</td> <td style="text-align: center;">3</td> </tr> </tbody> </table>	Mass (m kg)	Frequency	$0 < m \leq 5$	4	$5 < m \leq 10$	12	$10 < m \leq 15$	6	$15 < m \leq 20$	18	$20 < m \leq 25$	3	At least three cells correctly completed Fully correct	1 1
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30.6 (b)	<p>Estimate of total mass = $(2.5 \times 4) + (7.5 \times 12) + (12.5 \times 6) + (17.5 \times 18) + (22.5 \times 3)$ $= 10 + 90 + 75 + 315 + 67.5 = 557.5$ kg</p> <p>Total frequency = $4 + 12 + 6 + 18 + 3 = 43$</p> <p>Estimate of mean = $557.5 \text{ kg} \div 43 = 13$ kg, to the nearest kg</p>	<p>Use of frequency midpoint Complete method to find estimate of total mass and total frequency Correct answer</p>	<p>1 1 1</p>																																
30.7 (a)	<p>9 students enjoyed 7 or fewer lessons, so 21 enjoyed more than 7 lessons.</p> <p>percentage = $\frac{21}{30} \times 100 = 70\%$</p>	<p>Identifying how many total students enjoyed more than 7 lessons Expressing this as a percentage</p>	<p>1 1</p>																																
30.7 (b)	<table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Number of lessons</th> <th>Midpoint</th> <th>Frequency</th> <th>Frequency × midpoint</th> </tr> </thead> <tbody> <tr> <td>0–3</td> <td>1.5</td> <td>5</td> <td>7.5</td> </tr> <tr> <td>4–7</td> <td>5.5</td> <td>4</td> <td>22</td> </tr> <tr> <td>8–11</td> <td>9.5</td> <td>6</td> <td>57</td> </tr> <tr> <td>12–15</td> <td>13.5</td> <td>8</td> <td>108</td> </tr> <tr> <td>16–19</td> <td>17.5</td> <td>3</td> <td>52.5</td> </tr> <tr> <td>20–23</td> <td>21.5</td> <td>4</td> <td>86</td> </tr> <tr> <td>Totals</td> <td></td> <td>30</td> <td>333</td> </tr> </tbody> </table> <p>Estimated mean = $\frac{333}{30} = 11.1$</p>	Number of lessons	Midpoint	Frequency	Frequency × midpoint	0–3	1.5	5	7.5	4–7	5.5	4	22	8–11	9.5	6	57	12–15	13.5	8	108	16–19	17.5	3	52.5	20–23	21.5	4	86	Totals		30	333	<p>Finding midpoints for each range Finding the frequency × midpoint for each Summing the columns Correct answer</p>	<p>1 1 1 1</p>
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30.8	$F + V = E + 2$ $F = E + 2 - V = 15 + 2 - 10 = 7$ The shape has 7 faces Thus, the shape is a pentagonal prism.	Finds the number of faces Passable attempt at an isometric rendering Fully competent isometric rendering	1 1 1