Oxford Revise | AQA 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

Question	Answer	Extra information	Marks
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 $= \dfrac{117}{360} \times 400 = 130$ So, the number of hyacinths $= 400 - 180 - 130 = 90$ Missing pie chart values are: $\dfrac{180}{400} \times 360 = 162°$ for daffodils, and $\dfrac{90}{400} \times 360 = 81°$ for hyacinths.	Correct number of tulips Correct number of hyacinths Correctly completed pie chart	1 1 1
30.6 (a)	<table><tr><th>Mass (m kg)</th><th>Frequency</th></tr><tr><td>0 < m ≤ 5</td><td>4</td></tr><tr><td>5 < m ≤ 10</td><td>12</td></tr><tr><td>10 < m ≤ 15</td><td>6</td></tr><tr><td>15 < m ≤ 20</td><td>18</td></tr><tr><td>20 < m ≤ 25</td><td>3</td></tr></table>	At least three cells correctly completed Fully correct	1 1

Question	Answer	Extra information	Marks
30.6 (b)	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 Total frequency $= 4 + 12 + 6 + 18 + 3 = 43$ Estimate of mean = 557.5 kg $\div$ 43 = 13 kg, to the nearest kg	Use of frequency midpoint Complete method to find estimate of total mass and total frequency Correct answer	1 1 1
30.7 (a)	9 students enjoyed 7 or fewer lessons, so 21 enjoyed more than 7 lessons. percentage = $\dfrac{21}{30} \times 100 = 70\%$	Identifying how many total students enjoyed more than 7 lessons Expressing this as a percentage	1 1
30.7 (b)	<table><tr><th>Number of lessons</th><th>Midpoint</th><th>Frequency</th><th>Frequency × midpoint</th></tr><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></table> Estimated mean $= \dfrac{333}{30} = 11.1$	Finding midpoints for each range Finding the frequency × midpoint for each Summing the columns Correct answer	1 1 1 1

Question	Answer	Extra information	Marks
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