

REVISE

.wales

3.19 – Scatter diagrams & correlation

Mark schemes for the 3.19 question pack

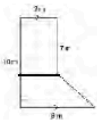
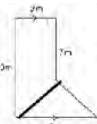
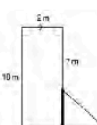
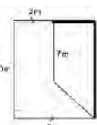
Spec 4.2.4, 4.2.5, 4.2.6, 4.2.7 – Unit 3

SOLUTIONS · 2025 SPECIFICATION

Mark schemes for the 3 questions in the corresponding revise.wales question pack (9 marks total). Sources: legacy WJEC GCSE papers, WJEC SAM, and custom-authored mark schemes. Pack layout © revise.wales.

3(a)(i) (2.5, 42) stated with a suitable line of best fit drawn through this point	B2	<p>For B2 do not ignore the answer space stating an incorrect point, or giving reverse coordinates</p> <p>Conditions of a suitable line of best fit:</p> <ul style="list-style-type: none"> • The straight line (accept intention if a ruler is not used) must have points above and below it • The line must be of sufficient length, to illustrate trend for at least 6 points • The trend shows that there are points above and below the line towards each end of the line <p>For B2 the point (2.5, 42) must be stated or plotted with a suitable line of best fit through this point. If (2.5, 42) is not stated or plotted, then it is only possible to award a maximum of B1</p> <p>Allow B2 for one of the following:</p> <ul style="list-style-type: none"> • a blank answer space with (2.5, 42) plotted with a suitable line of best fit through (2.5, 42) • (2.5, 42) stated in the answer space, but not plotted, with suitable line of best fit passing through (2.5, 42) <p>B1 for sight of any one of the following:</p> <ul style="list-style-type: none"> • (2.5, 42) stated in the answer space • blank answer space with (2.5, 42) indicated by a correct plot • A suitable line of best fit for the given points: <ul style="list-style-type: none"> ○ with no additional point plotted ○ passing through 'their additional incorrect point' (plotted) ○ suitable if 'their additional incorrect point' plotted is ignored
3(a)(ii) Reading from line of best fit for number of cups (tolerance to the nearest gridline) for rainfall of 2.0 mm	B1	<p>Answer space takes precedence</p> <p>STRICT FT from (a)(i) 'their line of best fit' which must be drawn for negative correlation</p> <p>No mark is awarded if no line of best fit drawn in (a)(i)</p>
3(b) $5 \times 18 + 5 \times 0.5$ or 18.5×5 92.5 (cm)	M1 A1	<p>Allow for $18 < \text{'their 18.5'} \leq 19$</p> <p>CAO</p> <p>If no marks, award SC1 for sight of 18.5 (cm) or 18.4999(... cm) provided clearly a recurring 9 digit</p>
3(c) Selects or unambiguously implies 'No' with a reason, e.g. '(Space) minimum 97.25 (cm) (which is less than 97.3 cm)'	E1	<p>Allow 'No' with a reason, e.g. '97.25 (cm)' '(least) 97.25 and (greatest) 97.75'</p> <p>Do not accept 'No' with the reason, e.g. '97.75 (cm)'</p>

8(a)(i) (2.5, 42) stated with a suitable line of best fit drawn through this point	B2	<p>For B2 do not ignore the answer space stating an incorrect point, or giving reverse coordinates</p> <p>Conditions of a suitable line of best fit:</p> <ul style="list-style-type: none"> • The straight line (accept intention if a ruler is not used) must have points above and below it • The line must be of sufficient length, to illustrate trend for at least 6 points • The trend shows that there are points above and below the line towards each end of the line <p>For B2 the point (2.5, 42) must be stated or plotted with a suitable line of best fit through this point. If (2.5, 42) is not stated or plotted, then it is only possible to award a maximum of B1</p> <p>Allow B2 for one of the following:</p> <ul style="list-style-type: none"> • a blank answer space with (2.5, 42) plotted with a suitable line of best fit through (2.5, 42) • (2.5, 42) stated in the answer space, but not plotted, with suitable line of best fit passing through (2.5, 42) <p>B1 for sight of any one of the following:</p> <ul style="list-style-type: none"> • (2.5, 42) stated in the answer space • blank answer space with (2.5, 42) indicated by a correct plot • A suitable line of best fit for the given points: <ul style="list-style-type: none"> ○ with no additional point plotted ○ passing through 'their additional incorrect point' (plotted) ○ suitable if 'their additional incorrect point' plotted is ignored
8(a)(ii) Reading from line of best fit for number of cups (tolerance to the nearest gridline) for rainfall of 2.0 mm	B1	<p>Answer space takes precedence</p> <p>STRICT FT from (a)(i) 'their line of best fit' which must be drawn for negative correlation</p> <p>No mark is awarded if no line of best fit drawn in (a)(i)</p>
8(b) $5 \times 18 + 5 \times 0.5$ or 18.5×5 92.5 (cm)	M1 A1	<p>Allow for $18 < \text{'their 18.5'} \leq 19$</p> <p>CAO</p> <p>If no marks, award SC1 for sight of 18.5 (cm) or 18.4999(... cm) provided clearly a recurring 9 digit</p>
8(c) Selects or unambiguously implies 'No' with a reason, e.g. '(Space) minimum 97.25 (cm) (which is less than 97.3 cm)'	E1	<p>Allow 'No' with a reason, e.g. '97.25 (cm)' '(least) 97.25 and (greatest) 97.75'</p> <p>Do not accept 'No' with the reason, e.g. '97.75 (cm)'</p>

Unit 1: Intermediate Tier	Mark	Comments																																				
6(a)(i) (£) 70	B2	B1 for any one of the following: <ul style="list-style-type: none"> • use of (£)2010 • use of (£)1940 																																				
6(a)(ii) Answer in the inclusive range (£)1700 to (£)1780	B1	Allow answers given as a range provided 'their range' is inclusively within the required range																																				
<p>6(b) (Total area of the driveway)</p>  <ul style="list-style-type: none"> • $\frac{1}{2} \times (10 - 7) \times (2 + 6) + 2 \times 7$ • $\frac{1}{2} \times 3 \times 8 + 2 \times 7$ (= 12 + 14)  <ul style="list-style-type: none"> • $\frac{1}{2} \times 2 \times (7 + 10) + \frac{1}{2} \times 6 \times (10 - 7)$ • $\frac{1}{2} \times 2 \times 17 + \frac{1}{2} \times 6 \times 3$ (= 17 + 9)  <ul style="list-style-type: none"> • $\frac{1}{2} \times (10 - 7) \times (6 - 2) + 2 \times 7 + 2 \times 3$ • $\frac{1}{2} \times 3 \times 4 + 2 \times 10$ (= 6 + 20)  <ul style="list-style-type: none"> • $6 \times 10 - \frac{1}{2} \times (6 - 2) \times (7 + 10)$ • $6 \times 10 - \frac{1}{2} \times 4 \times 17$ (= 60 - 34) <p style="text-align: right;">26 (m²)</p> <p>Cost in the inclusive range (£)1780 to (£)1860</p>	M2	<p>M1 for one of the following appropriate areas:</p> <ul style="list-style-type: none"> • $\frac{1}{2} \times (10 - 7) \times (2 + 6)$ (= 12m² area of trapezium) • $\frac{1}{2} \times 2 \times (7 + 10)$ (= 17m² area of trapezium) • $\frac{1}{2} \times 6 \times (10 - 7)$ (= 9m² area of a triangle) • $\frac{1}{2} \times (10 - 7) \times (6 - 2)$ (= 6m² area of the triangle) • $\frac{1}{2} \times (6 - 2) \times (7 + 10)$ (= 34m² area 'extra' trapezium) <p>A1 CAO</p> <p>B1 FT '20 ≤ their derived composite area ≤ 30' for a suitable cost from the scatter diagram, within a range (shown below); must be for a composite area</p> <p>Do not FT from the perimeter or with the missing side, 25(m)</p> <p>Allow an answer in a range, provided 'their range of answers' is inclusively within the stated range</p> <p>On FT cost in the inclusive range:</p> <table border="1"> <thead> <tr> <th>Area (m²)</th> <th>Least estimated cost (£)</th> <th>Greatest estimated cost (£)</th> </tr> </thead> <tbody> <tr><td>20</td><td>1410</td><td>1460</td></tr> <tr><td>21</td><td>1460</td><td>1510</td></tr> <tr><td>22</td><td>1520</td><td>1570</td></tr> <tr><td>23</td><td>1590</td><td>1650</td></tr> <tr><td>24</td><td>1650</td><td>1710</td></tr> <tr><td>25</td><td>1700</td><td>1780</td></tr> <tr><td>26</td><td>1780</td><td>1860</td></tr> <tr><td>27</td><td>1850</td><td>1930</td></tr> <tr><td>28</td><td>1920</td><td>2010</td></tr> <tr><td>29</td><td>1970</td><td>2060</td></tr> <tr><td>30</td><td>2030</td><td>2130</td></tr> </tbody> </table>	Area (m ²)	Least estimated cost (£)	Greatest estimated cost (£)	20	1410	1460	21	1460	1510	22	1520	1570	23	1590	1650	24	1650	1710	25	1700	1780	26	1780	1860	27	1850	1930	28	1920	2010	29	1970	2060	30	2030	2130
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29	1970	2060																																				
30	2030	2130																																				

Unit 1: Intermediate Tier	Mark	Comments
6(c) (Repair of 23m ² driveway cost £) 0.4 × 1590 to 0.4 × 1650	B1	
'No' unambiguously stated or implied AND a <u>correctly evaluated</u> 40% cost that will be in the range (£)636 to (£)660	B1	Do not award if 'No' is based on further working, such as 60% evaluated rather than 40%
6(c) <i>Alternative method e.g.</i> <ul style="list-style-type: none"> • 40% is (£)575 so 100% is 2.5×575 (= £1437.50) • 40% is (£)600 so 100% is 2.5×600 (= £ 1500) 	B1	
'No' unambiguously stated or implied AND a correctly evaluated 100% AND shows less than needed, e.g. a reading from the diagram £1590 to £1650 (22.8m ² for £1600)	B1	

End of solutions