REVISE
.wales

F1.14 — Metric & imperial units; estimating measurements

Mark schemes for the F1.14 question pack

Spec 3.5.2, 3.5.6, 3.5.7 — Unit 1

SOLUTIONS · 2025 SPECIFICATION

Mark schemes for the 25 questions in the corresponding revise.wales question pack (42 marks total). Sources: legacy WJEC GCSE papers, WJEC SAM, and custom-authored mark schemes. Pack layout © revise.wales.

Unit 1: Foundation Tier Summer 2018		
1.(a) 11·5 (cm)	B1	Accept 11·3 - 11·7 (cm)
1.(b) circle with radius 6 cm	B1	
1.(c) 134 (°)	B1	Accept 132 – 136 (°)

4.(a) (i) 22 (cm)	B1	
4.(a) (ii) 18 cm^2	B1 U1	
4.(b) Rectangle 3 × 6	B1	Accept any rectangle with an area of 18 cm^2 which fits on the grid e.g. 4 × 4.5 FT 'their (a)(ii)'

2.(a)	kilometres	B1	
2.(b)	kilograms	B1	

			Allow an embedded 2·3, B1B1B0
3.(a)	4 hours 45 min	B1	
3.(b)	2·4 km	B1	
3.(c)		B2	For all 4 correct. B1 for 3 correct.

7km less than 5 miles	TRUE	
1kg less than 2lb		FALSE
1 litre less than 1 pint		FALSE
8 litres less than 900cm^3		FALSE

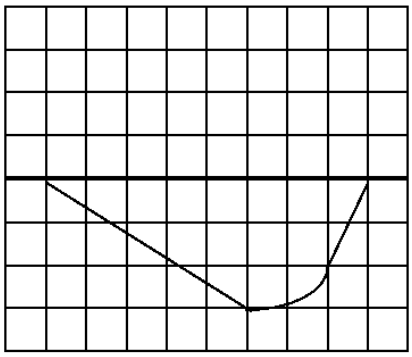
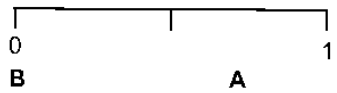
9. Length of sides in Cuboid B = 5 (cm), 3(cm), 6 (cm) Volume of Cuboid B = 5 x 3 x 6 = 90 (cm^3)	B1 M1 A1	Award B1 for (height =) 6 (cm), provided length and width aren't also multiplied by 3. F.T. 'their height' x 5 x 3
Alternative method *(Volume of Cuboid A =) 5 x 3 x 2* *= 30 (cm^3)* *(Volume of Cuboid B =) 90 (cm^3)*	*M1* *A1* *B1*	 *F.T. for their stated or derived volume for Cuboid A'*
Organisation and Communication. Accuracy of writing.	OC1 W1	For OC1, candidates will be expected to: • present their response in a structured way • explain to the reader what they are doing at each step of their response • lay out their explanation and working in a way that is clear and logical • write a conclusion that draws together their results and explains what their answer means For W1, candidates will be expected to: • show all their working • make few, if any, errors in spelling, punctuation and grammar • use correct mathematical form in their working • use appropriate terminology, units, etc
10.(a)(i) Subtract six (from the previous term)	B1	Accept 'take away 6' or '(goes) down in 6s'. Allow -6. B0 for n-6
10.(a)(ii) Double (the previous term)	B1	Accept 'multiply by 2' or 'times by 2'. Allow ×2. B0 for n×2
10.(b)(i) x + 3	B1	Mark final answer.
10.(b)(ii) (£)15g	B1	Mark final answer. Accept 15 × g
11.(a) 28·34 or 1417/50 or $28^{17}/_{50}$ ISW	B2	B1 for sight of 23·04 OR sight of 5·3. If B0 allow SC1 for 28 or 28·3
11.(b) 34·8 or 174/5 or $34^{4}/_{5}$ ISW	B1	
12.(a) (19 − 18·2 =) 0·8	B2	B1 for sight of 19 OR sight of −18·2. BUT B0 for 19f − 18·2g. Mark final answer.
12.(b) 7x = 16 (x =) 16/7 (x=) 2·3 (to 1dp)	B1 B1 B1	 FT from 7x = k. Allow 16 ÷ 7 FT from any fraction that requires rounding. Mark final answer. (x =) 2·2…. implies B1B1B0. Allow an embedded 2·3, B1B1B0
13.(a) 4 hours 45 min	B1	
13.(b) 2·4 km	B1	
13.(c) 7km less than 5 miles — TRUE 1kg less than 2lb — FALSE 1 litre less than 1 pint — FALSE 8 litres less than 900cm^3 — FALSE	B2	For all 4 correct. B1 for 3 correct.

7.	36	B3	B2 for 4, 9 or 12. B1 for 1, 3, 6, 15, 16, 18, 20, 21 24, 25, 27, 28, 30, 33 or 39.

17.	36	B3	B2 for 4, 9 or 12. B1 for 1, 3, 6, 15, 16, 18, 20, 21, 24, 25, 27, 28, 30, 33 or 39. B0 for any other numbers.

WJEC GCSE MATHEMATICS

AUTUMN 2021 MARK SCHEME

Unit 1: Foundation Tier	Mark	Comments
1.(a) Ninety-five thousand and forty-eight	B1	
1.(b) 931	B1	
1.(c) 1250	B1	
1.(d) 208	B1	
1.(e) 1,2,3,6,9,18	B2	B1 for 4 or 5 correct and 0 incorrect B1 for 5 or 6 correct and 1 incorrect Ignore repeated numbers Accept products 1×18, 2×9, 3×6
2.(a) 94 (mm)	B1	Accept 92 to 96 (mm)
2.(b) 136(°)	B1	Accept 134 to 138 (°)
3.(a) 16	B1	
3.(b) ¾	B1	Mark final answer.
3.(c) 28	B1	
4. 	B2	B1 for correct longer straight line. B1 for correct curve AND shorter straight line. The lines must pass through the correct points.
5.(a) 4.3 x 1000 4300 (g)	M1 A1	
5.(b) 3 × 100 ÷ 6 50 (cm)	M1 A1	If M0 A0, award SC1 for sight of 300(cm) or 0.5(m).
6. 	B1 B1	A should be between 0.6 and 0.8 B should be at 0

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AUTUMN 2021 MARK SCHEME

Unit 1: Foundation Tier	Mark	Comments
1.(a) Ninety-five thousand and forty-eight	B1	
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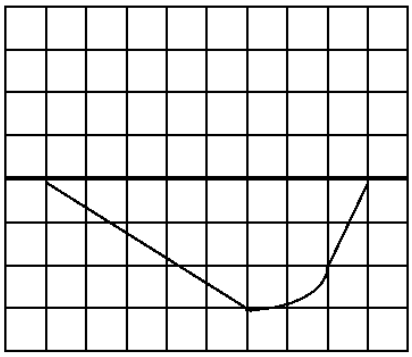
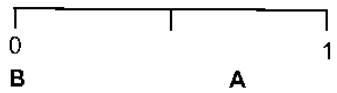
1.(e) 1,2,3,6,9,18	B2	B1 for 4 or 5 correct and 0 incorrect B1 for 5 or 6 correct and 1 incorrect Ignore repeated numbers Accept products 1×18, 2×9, 3×6
2.(a) 94 (mm)	B1	Accept 92 to 96 (mm)
2.(b) 136(°)	B1	Accept 134 to 138 (°)
3.(a) 16	B1	
3.(b) ¾	B1	Mark final answer.
3.(c) 28	B1	
4. 	B2	B1 for correct longer straight line. B1 for correct curve AND shorter straight line. The lines must pass through the correct points.
5.(a) 4.3 x 1000 4300 (g)	M1 A1	
5.(b) 3 × 100 ÷ 6 50 (cm)	M1 A1	If M0 A0, award SC1 for sight of 300(cm) or 0.5(m).
6. 	B1 B1	A should be between 0.6 and 0.8 B should be at 0

2(a) one hundred and ninety-five thousand	B1	Do not accept • one hundred thousand and ninety-five thousand • 195 thousand
2(b) Caernarfon Castle	B1	Allow (+)0.2(%) as indication of Caernarfon Castle
2(c) 255949 + 260153 516 102	M1 A1	
2(d) 452 007 – 319 131 132 876	M1 A1	Allow 319 131 – 452 007 Allow -132 876

2(e) Yes and valid reason given e.g. 'Yes, because 455 428 is nearly 500 000' 'Yes, because if you round up 455 428 to the nearest hundred thousand it is 500 000' 'Yes, as 455 428 is closer to half a million than 400 000' 'Yes, because rounding to the nearest 100 000 would give you half a million'	E1	Allow e.g. 'Yes, because they had over 450 000' 'Yes, as only about 50 000 away from half a million' 'Yes, because 455 428 is nearly half a million' 'Yes, as you would round up to the nearest 50 000' 'Yes, as half a million is 500 000' 'No because it is nearly 45 000 short' 'No as it was only 455 428 so that's not quite half a million' 'No, because it is closer to 450 000' 'No because it is 460 000' 'No, because it is about 50 000 below' 'No, because it is just over 450 000' 'No, because the number is below 500 000 so it isn't half a million' 'No, because half a million is 500 000 but the number is 455 428' 'No because it would be in the 500 000 so he is wrong because 455 428 is less than half a million' Do not accept e.g. 'Yes, because 455 428 is about half a million' – this is the statement given 'No, because it's only 455 428' 'No because 455 428 isn't close to half a million as it is in the 4s' 'No, because they got 455 428'
2(f) Evidence of counting squares **inside** shape Answer in range 14 to 20 Correct evaluation of 'their area' × 4 and manager correct Or 48 ÷ 4 = 12 and manager correct	M1 A1 E1	 FT if M1 awarded for a correct evaluation of 'their area' × 4 and conclusion made consistent with their answer OR 'their area' is in the range 13 to 22 with 'their area' × 4 correct and manager correct
Alternative method *Evidence of splitting each square into 4* *Answer in range 56 to 80* *Correct evaluation (conclusion) of the area with manager correct*	*M1* *A1* *E1*	*Or for counting up in 4s up to at least 20* *Must not come from incorrect work* *FT if M1 awarded with conclusion made consistent for 'their area'* *OR* *'their area' is in the range 52 to 88 with correct conclusion*

3. Evidence of counting squares 59 (cm^2)	M1 A1	 Accept 54 to 64 (cm^2) inclusive.

4(a) (Area of lawn) ½ × 3 × 4 + ½ × 5 × 12	M2	(= 6 + 30 = 36 m^2) M1 for any one of the following: • sight of ½ × 3 × 4 and ½ × 5 × 12 • ½ × 3 × 4 + ... • .... + ½ × 5 × 12 • Sight of either area correct, 6 or 30
(To find cost of seed) × (0.)30	m1	FT from M1
(£) 10.8(0) or 1080(p)	A1	FT from M1, m1 provided it is from the sum of 2 areas of triangles Allow if FT correctly evaluated area rounded up to the nearest m^2 If units are given they must be correct If no marks, award SC1 for an answer of (£)21.60 or 2160(p)
4(b)(i) (175 – 55) ÷ 8 or 120 ÷ 8	M1	May be seen in stages
(£) 15	A1	CAO. Allow an embedded answer of 15, e.g. 8 × 15 = 120
4(b)(ii) (Total including VAT is) 175 + 175 × 0.2(0) or 175 × 1.2(0) or equivalent	M2	May be seen in stages M1 for (VAT) 175 × 0.2(0) or 17.5 + 17.5 (= 35) or equivalent
(£) 210	A1	If no marks, award • either SC2 for total including VAT correctly evaluated starting with charge 55, 15 or 'their 15' from (b)(i), i.e. 66, 18 or correctly evaluated 'their 15' × 1.20 • or SC1 for a calculation for total including VAT starting with charge 55, 15 or 'their 15' from (b)(i), i.e. 55 × 1.20, 15 × 1.20 or 'their 15' × 1.20 or equivalents
4(c)(i) 'No' selected or unambiguous implied with reason, e.g. 'no correlation' 'no pattern' '(points are) random' 'no trend' 'number of leaves is not affected by height'	E1	Allow, e.g. 'No' with 'different flowers have different (numbers of) leaves' 'scattered' ' the data (or answers) are not consistent' Do not accept, e.g. 'No' with 'there isn't a leaf with height 6cm' 'it does not show on the graph' 'there is no data for 6' 'it doesn't say how many there are' 'not enough research' 'sample too small' 'some points close together' 'data is not reliable'
4(c)(ii) 7.5 cm	B1	
4(c)(iii) 17.5 – 13 or 9 × 0.5	M1	Allow 13 – 17.5
4.5 (cm)	A1	Answer space takes precedence Allow FT -4.5 (cm) from 13 – 17.5 If no marks, award SC1 for the difference correctly evaluated provided either 17.5 or 13 is correct

4(c)(iv)	80(%)	B2	Answer space takes precedence B1 for sight of any of the following: • 8/10 • 8 ÷ 10 • (Including 23, 100 × 9 ÷ 10 =) 90 (%) B0 for '8 out of 10'

5. (a)	0·034	B1	
5. (b)	67 000	B1	
5. (c)	$3(4e+5)$	B1	

9(a)(i) (175 – 55) ÷ 8 or 120 ÷ 8 (£) 15	M1 A1	May be seen in stages CAO. Allow an embedded answer of 15, e.g. 8 × 15 = 120
9(a)(ii) (Total including VAT is) 175 + 175 × 0.2(0) or 175 × 1.2(0) or equivalent (£) 210	M2 A1	May be seen in stages M1 for (VAT) 175 × 0.2(0) or 17.5 + 17.5 (= 35) or equivalent If no marks, award • either SC2 for total including VAT correctly evaluated starting with charge 55, 15 or 'their 15' from (b)(i), i.e. 66, 18 or correctly evaluated 'their 15' × 1.20 • or SC1 for a calculation for total including VAT starting with charge 55, 15 or 'their 15' from (b)(i), i.e. 55 × 1.20, 15 × 1.20 or 'their 15' × 1.20 or equivalents
9(b)(i) 'No' selected or unambiguous implied with reason, e.g. 'no correlation' 'no pattern' '(points are) random' 'no trend' 'number of leaves is not affected by height'	E1	Allow, e.g. 'No' with 'different flowers have different (numbers of) leaves' 'scattered' ' the data (or answers) are not consistent' Do not accept, e.g. 'No' with 'there isn't a leaf with height 6cm' 'it does not show on the graph' 'there is no data for 6' 'it doesn't say how many there are' 'not enough research' 'sample too small' 'some points close together' 'data is not reliable'
9(b)(ii) 7.5 cm	B1	
9(b)(iii) 17.5 – 13 or 9 × 0.5 4.5 (cm)	M1 A1	Allow 13 – 17.5 Answer space takes precedence Allow FT -4.5 (cm) from 13 – 17.5 If no marks, award SC1 for the difference correctly evaluated provided either 17.5 or 13 is correct
9(b)(iv) 80(%)	B2	Answer space takes precedence B1 for sight of any of the following: • 8/10 • 8 ÷ 10 • (Including 23, 100 × 9 ÷ 10 =) 90 (%) B0 for '8 out of 10'

			A final answer of 0·875 is awarded B1B0.
10.	$\frac{3}{4} \times 512$ OR $512 - \frac{1}{4} \times 512$ or equivalent	M1	Award M1 for full method for calculating the OUTPUT.(Note: 512 – 128).
	= 384	A1	
	$\frac{3}{4} \times 384$ OR $384 - \frac{1}{4} \times 384$ or equivalent	M1	Award M1 for full method for calculating the OUTPUT.(Note: 384 – 96). FT 'their 384' if greater than 300.
	(OUTPUT =) 288 ISW	A1	FT if 'their 288' < 300, or further evaluation correctly carried out until their output < 300. If no marks gained allow SC1 for sight of 128. Award M2 for $\frac{9}{16} \times 512$ with answer of 288 is awarded A2.

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2(a) $\frac{90}{360} \times 540$ or ¼ × 540 or 540 ÷ 4 or equivalent	M1	
135 (people)	A1	Answer space takes precedence When repeatedly halving 540, if there are errors, award M0 A0 unless indication that the intention is to divide by 2, e.g. • 540 ÷ 2 = 220 (error) , 220 ÷ 2 = 110 is M1 A0 • 540, 220, 110 is M0 A0
2(b) Angle measured 170(°) ± 2(°)	B1	May be seen on the pie chart
0.4 × 170(° ± 2°) or equivalent	M1	FT for 'their angle, provided 90° < 'their angle' < 180° Any method of repeated addition must **clearly** be addition to 40%
68(°) or angle in the range 67(°) to 69 (°)	A1	Only allow angles in this range provided not from incorrect working Answer space takes precedence Allow A1 for labelled angle on the pie chart if no **final** answer given. On FT, using 'their 170', allow angles correctly rounded or truncated to the nearest degree
2(c) $540 - \frac{7}{10} \times 540$ or $(1 - \frac{7}{10}) \times 540$ or $\frac{3}{10} \times 540$	M1	For complete method
162 (not children)	A1	Answer space takes precedence If no marks, award SC1 for sight of $(\frac{7}{10} \times 540 =)$ 378

7(a)(i) 2.4 (kg)	B2	Answer space takes precedence B1 for any one of the following: • attempt to multiply 200 by 12 which may include a place value error, or equivalent shown as repeated addition, e.g. 2 × 12, 20 × 12, 2000 × 12, …. • sight of 2400 in working • an answer of 2400 • $\frac{48}{4} \times 200$ • 2kg 400g
7(a)(ii) 1 : 8 : 2	B2	Answer space takes precedence If units (g) are included then B1 only. B1 for sight of any one of the following (ignoring inclusion of 'g'): • 25 : 200 : 50 • 5 : 40 : 10 • equivalent multiple of the ratio 1 : 8 : 2 • a ratio involving 1, 8 and 2 in an incorrect order
7(b)(i) 6 g	B1	
7(b)(ii) (Daily recommendation =) 0.8 × 70 56 (g) 25 (%)	M1 A1 A2	Allow if embedded in further incorrect working only if this working includes the use of '14' Ignore any incorrect unit given, e.g. % or kg FT $\frac{14}{\text{'their } 0.8 \times 70'}$ for possible A2 or A1 On FT allow rounding or truncation of the final percentage A1 for one of the following: • the fraction $\frac{14}{56}$ or $\frac{7}{28}$ or $\frac{1}{4}$ • a clear full method finding percentages of 56(g) clearly working towards 14(g)

17. (length of small shaded square =) $\sqrt{16}$ or equivalent **OR** (length of large shaded square =) $\sqrt{144}$ or equivalent	M1	Check diagram for answers. Allow $16 \div 4 = 4$.
(length of small shaded square =) 4 (cm)	A1	Sight of 4 or 12 implies M1.
(length of large shaded square =) 12 (cm)	A1	
(total area of unshaded regions =) 96 (cm^2)	B2	FT 'their derived 4' × 'their derived 12' × 2 Award B1 for one of the following: • sight of 48 (cm^2) • 4×12 • 'their derived 4' × 'their derived 12'.
17. Alternative Method (find total area of square) *(length of small shaded square =) $\sqrt{16}$ or equivalent* ***OR*** *(length of large shaded square =) $\sqrt{144}$ or equivalent*	*M1*	*Check diagram for answers.* Allow $16 \div 4 = 4$
(length of small shaded square =) 4 (cm) *(length of large shaded square =) 12 (cm)*	*A1* *A1*	*Sight of 4 or 12 implies M1.*
(total area of unshaded regions =)$(4+12)^2 - 16 - 144$	*M1*	*Note: 256 - 160* *Award M1 for complete method.*
96 (cm^2)	*A1*	*FT ('their derived 4' + 'their derived 12')^2 – 16 – 144*

20. Working in mm: $60{\cdot}5 \times 7$ **OR** $420 + 0{\cdot}5 \times 7$ Working in cm: $6{\cdot}05 \times 7$ **OR** $42 + 0{\cdot}05 \times 7$ 423·5 (mm) ISW	M1 A1	Allow 60 < 'their 60·5' ≤ 61. Allow 6 cm < 'their 6·05' cm ≤ 6·1 cm. Allow 42·35 cm, provided units are given and correct. CAO. If no marks, award SC1 for sight of 60·5 OR 6·05.

Unit 2: Intermediate Tier		Mark	Comments
1.(a)	$x = 100$	B1	Mark final answer. Allow B1 for a correct embedded answer BUT B0 if contradicted by $x \neq 100$.
1.(b)	$7m = 28$ $m = 4$	B1 B1	FT from $7m = k$. Unsupported answer of 4 is awarded B1B1. $m = \frac{28}{7}$ is awarded B1B0. If FT leads to a whole number answer, it must be shown as a whole number. Otherwise accept a fraction or decimal (e.g. if $7m = 34$, then $m = \frac{34}{7}$ is awarded B0B1, but m = 34÷7 is awarded B0B0). Allow B1B1 for a correct embedded answer BUT only B1B0 if contradicted by $m \neq 4$.

2.(a) 0·5 kg	B1	
2.(b) 24 km	B1	

Unit 1: Foundation Tier	Mark	Comments
11. 5, 7, 7, 9 (in any order)	B3	Answer boxes take precedence. Four numbers must be given for B3 or B2 to be awarded B3 for 7, 7, 5, 9 B2 for mode = 7 AND total = 28 • 7, 7, a, b where a+ b = 14 and a and b can be any numbers (negative, fractions, decimals, even number or ≥10) e.g. 7, 7, 2, 12 • NOT 7, 7, 7, 7 At least 2 numbers must be given for B1 to be awarded. B1 for mode = 7 OR total = 28 Examples include: • 7,7,7,7 • 7,7,7,14 (mode = 7, total ≠ 28) • 7, 7, blank, blank (mode = 7, total ≠ 28) • 7, 3, 9, 9 (mode ≠ 7, total = 28) • 7, 9, 12, blank (mode ≠ 7, total = 28) B1 for 7,7,14, blank (mode = 7, total = 28) B0 for 7, blank, blank, blank,

3(a)	grams	B1	
3(b)	kilometres	B1	

5(a) 25400 or twenty-five thousand (and) four hundred	B1	
5(b) 61	B1	
5(c) 2500(g)	B2	B1 for any one of the following: • $\frac{10 \times 1000}{4}$ • 10000 ÷ 4 • 2.5 • the consecutive digits 2 and 5 in an answer with no other non-zero digits e.g. 0.25, 25, 250,… • 'their derived 10 ÷ 4' × 1000 • an answer of 2200

		tins with 3, or their area with 4.8(m^2) is given
11. (Electricity cost is) 654 × (£)0.30 (£)196.2(0) or 19620(p) (Cost of electricity and standing charge is £196.20 + 54 =) (£) 250.2(0) (Total bill including VAT) 1.05 × 250.2(0) or 250.2(0) + 12.51 (£)262.71	 M1 A1 B1 M1 A1	<u>Incorrect unit of money is penalised -1 once only on the first occurrence, by withholding an A or B mark</u> Accept 654 × 30(p) If units are given they must be correct Accept £196.20p FT provided 654 used in a calculation for 'their cost of electricity' Do not accept if embedded with an incorrect interpretation of the standing charge, e.g. 196.20 + 3 × 54 = (£)358.20 is B0 If previous M0 A0 B0 for (654 × (£)0.30 × 3 =) £588.60 AND (588.60 + 54 × 3 = 588.60 + 162 =) £750.60, award SC1 for this consistent misunderstanding and then FT FT from 'their derived total of electricity' + 'their standing charge', accept rounding or truncation to a penny Allow M1 A0 for 1.05 × 'their total rounded or truncated to a whole pound' If M0 A0 for inclusive of VAT cost, allow SC1 for an answer of (£)262.70, provided not from incorrect working (allow from 250.20 + 12.50) If final B0 M0 A0, award SC1 for the correct evaluation of 1.05 × 'their derived cost of electricity' having not considered and omitted the standing charge, or previously subtracted the standing charge from 'their cost of electricity'

End of solutions