REVISE
.wales

F1.12 — Conversion, travel & distance-time graphs

Mark schemes for the F1.12 question pack

Spec 2.5.1, 2.5.2 — Unit 1

SOLUTIONS · 2025 SPECIFICATION

Mark schemes for the 9 questions in the corresponding revise.wales question pack (20 marks total). Sources: legacy WJEC GCSE papers, WJEC SAM, and custom-authored mark schemes. Pack layout © revise.wales.

14. Sight of 9 AND 49 n + 9 = 49 (n =) 40	B1 M1 A1	 Any unambiguous indication that this linear relationship is being considered (including 'trial and improvement'). FT their $\sqrt{81}$ (≠81) AND 7^2 (≠7) for M1 and possibly A1 if at least one correct value used. FT for M1 only if neither correct value used. Award M1 if 49 – 9 seen. Mark final answer.
15. Indicates 2 (letters out of 6 gain points) (Expected number of wins =) $\frac{2}{6} \times 24$ or equivalent = 8 (Points gained =) 8 × 10 = 80 (points) AND 'No' (Leah is not expected score 100 points)	B1 M1 A1 M1 A1	Any unambiguous indication. FT 'their stated number of '10 point' letters'. Award M1A1 for 8/24 suggesting '8 wins out of 24' FT 'their derived 8' × 10 only if 'their derived 8' < 24. FT their derived number of points
Alternative method 1 *Indicates 2 (letters out of 6 gain points)* *(Each letter expected to be drawn) $\frac{24}{6}$ (times)* *= 4 (times)* *(Points gained =) 4 × 2 × 10* *= 80 (points) AND* *'No' (Leah is not expected score 100 points)*	*B1* *M1* *A1* *M1* *A1*	*Any unambiguous indication.* *FT 'their derived 4' and 'their stated 2'.* *FT their derived number of points.*
Alternative method 2 *Indicates 2 (letters out of 6 gain points)* *(Expected number of wins =) $\frac{2}{6} \times 24$ or equivalent* *= 8* *(Number of wins required =) $\frac{100}{10}$* *= 10 (wins) AND* *'No' (Leah is not expected score 100 points)*	*B1* *M1* *A1* *M1* *A1*	*Any unambiguous indication.* *FT 'their stated number of '10 point' letters'.* *Award M1A1 for 8/24 suggesting '8 wins out of 24'* *FT their derived number of expected wins.* *Note for Alternative method 2* *If 'number of wins required' is calculated before calculating 'number of expected wins' then the conclusion ('AND') will be attached to the 8 rather than the 10.*
16. 4x + 5 = 57 or equivalent 4x = 52 x = 13	M1 A1 A1	 FT from 4x = k. Accept x = k/4 (but, if on FT k is a multiple of 4, final answer must be given as a whole number.) M1A1A0 for 'x = 52/4' Mark final answer. Allow (M1)A1A1 for a correct embedded answer BUT only (M1)A1A0 if contradicted by x ≠ 13.
17. 3, 4, 4, 9 OR 3, 3, 5, 9.	B3	B1 for a range = 6. B1 for a total = 20. B1 for a median = 4. Penalise use of negative or non-integer values −1. FOUR numbers must be shown, otherwise B0.
18. Use of Distance / Time $\frac{100}{2{\cdot}5}$ or equivalent = 40 (mph)	M1 M1 A1	Allow M1 even for e.g. 100 / 2·3(0) or 100/150. C.A.O.

17. Use of 129·5 / time	M1	Allow M1 even for e.g. 129·5/3 hours 30 mins or 129·5/3·3(0) or 129·5/210
129·5 ÷ 3·5 or equivalent	M1	Must be a complete and correct method e.g. 129·5/210 × 60
37 (miles per hour)	A1	CAO Award M1M0A0 for sight of unsupported 0·61(6666….) (use of 129·5/210) OR 39·24(2424…) (use of 129·5/3·3).

4(a) 23/100 × 4000 or equivalent 920 (920 – 800=) 120 (euros)	M1 A1 A1	Answer line takes precedence Allow full correct method e.g. • using 10% and 1% i.e. 400 + 400 +40 + 40 + 40 or equivalent • 4000 – 77/100 × 4000 FT from M1 A0 'their 920' – 800 correctly evaluated
Alternative Method *4(a) 23/100 × 4000 - 800* *120 (euros)*	*M2* *A1*	*Answer line takes precedence* *Award M2 for (4000 – 800) – 77/100 × 4000* *(3200 – 3080)* *Award M1 for 23/100 × 4000 or equivalent*
4(b) 3600 ÷ 1.11 (£) 3243.24	M1 A1	Answer space takes precedence Sight of (£) 3243 or 3243.2(4324....) implies M1

Correctly drawn pie chart within tolerance **AND** correctly labelled **Red** = 72(°) (allow 70° to 74°) **Green** = 108(°) (allow 106° to 110°)	B3	Award B2 for one of the following: • correctly drawn pie chart within tolerance but not labelled or incorrectly labelled • pie chart drawn within tolerance but not a straight line • pie chart drawn not starting from the centre (but end point within tolerance) • sight of red = 72(°) • sight of green = 108(°). Award B1 for sight of one of the following: • 72(°) • 108(°) • (red=) $\frac{2}{10} \times 360$ or equivalent • (red=) $\frac{2}{5} \times 180$ or equivalent • (green=) $\frac{3}{10} \times 360$ or equivalent • (green=) $\frac{3}{5} \times 180$ or equivalent • 'their **derived** 72' and 'their **derived** 108' drawn correctly, provided that 'their 72' + 'their 108' = 180 and identified as red and green, and not 90°.

5(a) 15(:)00 or 3 p.m.	B1	Allow 15(:)00 pm, 3(:00) or 3 o'clock Do not accept 15(:)00 am, 3 a.m, 03:00 (p.m)
5(b) 14 (km)	B1	
5(c) 12:00 to 12:30	B1	

Unit 2: Foundation Tier	Mark	Comments
7(a)(i) 133 × 8 1064 (miles)	M1 A1	Mark final answer. Allow 1064 km
7(a)(ii) 8 × 60 480 (mph)	M1 A1	FT from (a)(i) 60 × 'their 1064' ÷ 133 or 'their 1064' ÷ $\frac{133}{60}$ or 'their 1064' ÷ 2.2(166…) Allow A1 for 479 (mph) < answer ≤ 483.64 (mph) from 1064 ÷ 2.2(1666…) rounded or truncated to at least 1 d.p. or similar for a correctly evaluated 'their 1064' ÷ 2.2(166..)
7(b) 55 × 40 × 23 50 600 (cm^3) or 50 600 ml or 50.6 litres Unambiguously implies 'Yes' with one of the following: • (48 litres =) 48 000 cm^3 • 50.6 (litres) • a suitable appropriate statement, e.g. '50 litres is more than 48 litres'	M1 A1 E1	FT from M1 A0 provided appropriate conclusion and conversion is shown Allow 'Yes' with clear **use of** 1 litre = 1000 cm^3, e.g. • (48 litres is less than) 50(.6 litres) • 50(.6 litres is greater than 48 litres) • 50 000 (cm^3) is greater than 48 000 (cm^3)
7(c) a = 43(°) b = 137(°) c = 112(°) d = 112(°)	B1 B1 B1 B1	 FT b = 180 - 'their a', provided 'their b' > 90 and 'their b' ≠ 112 FT 360 – (68 + 'their a' + 'their b'), provided: • 112 < 'their a' + 'their b' < 202 • c ≠ 137 • their c' ≠ 'their b' FT d = 'their c', provided 90 < 'their c' < 180

8. *Select the method to give the best mark:*

	Method **using £**	**OR**	Method **using $**
Camera Fox	(62.95 + 3.90 =) (£)66.85 B1		(62.95 + 3.90) × 1.25 or (£)66.85 × 1.25 or 62.95 × 1.25 + 3.90 × 1.25 M1 ($)83.56(25) or (78.69 + 4.88 = $)83.57 *Allow an answer in the range* *($) 83.55 to ($)83.57* A1
US Camera Geek	81.20 ÷ 1.25 M1 (£)64.96 A1		($81.20 given)
Sure Camera	75 – 75 × 0.14 or 75 – 10.50 or 75 × (1 – 0.14) M1 (£)64.50 A1		(75 – 75 × 0.14) × 1.25 or 64.50 × 1.25 or 75 × (1 – 0.14) × 1.25 M2 ($)80.62(5) or ($)80.63 A1
Conclusion 'Sure Camera'	Costs 66.85, 64.96 and 64.50 WITH incorrect conclusion or no conclusion penalise -1		Costs in dollars correct WITH incorrect conclusion or no conclusion penalise -1

OR method **using £ and $**

	£		$
Camera Fox	(62.95 + 3.90 =) (£)66.85 B1		
US Camera Geek			($81.20 given)
Sure Camera	*75 – 75 × 0.14* *M1* *(£)64.50* *A1*	***or***	(75 – 75 × 0.14) × 1.25 M2 ($)80.62(5) or ($)80.63 A1
Conclusion	Costs (£)66.85 with (£)64.50 and ($)80.62(5) (or ($)80.63) AND conclusion 'Sure Camera' A1		

4(a)(i) 045(°) (± 3°)	B1	Do not accept 45(°) (± 3°)
4(a)(ii) 243(°) (± 3°)	B1	
4(a)(iii) An unambiguous answer of 8 (km) or an answer in the range 7.68 (km) to 8.32 (km)	B2	This must be an unambiguous answer, do not award if another distance is also given as a final answer, e.g. • 5 miles = 8 km final answer 7 km • 5 miles = 8 km with final answer 8 ÷ 5 = 1.6 B1 for any one of the following: • (5 cm =) 5 miles = 8 km with a further incorrect calculation or distance • 5 (± 0.2) × 1.6 • 5 (± 0.2) × 8 ÷ 5 • 5 (± 0.2) × 1.609 • 5 (± 0.2) × 1.61 B0 for 5 (± 0.2) × 1.5
4(b)(i) Answer in the inclusive range 14.45 (lumens) to 14.5 (lumens)	B1	
4(b)(ii) Answer in the inclusive range 1.07 (candelas) to 1.075 (candelas)	B1	
4(c) Any value in the range 19 to 20	B2	Accept from reverse working Answer space takes precedence, if blank allow an unambiguous embedded answer in the range B1 for sight of unambiguous appropriate working, e.g. any of the following examples or similar: • 1 000 000 ÷ 52 000 • 1 000 000 ÷ 50 000 • $\frac{1\,000\,000}{52\,000}$ • $\frac{1\,000\,000}{50\,000}$ • $\frac{1000}{50}$ • $\frac{1000}{52}$

10(a) $0.03 \times 4000 + 4000$ or 1.03×4000 (= £4120) or equivalent	M1	Allow for sight of one of the following: • 4120 (irrespective of labelling) • 4240 (simple interest)
$0.03 \times 4120 + 4120$ or 1.03×4120 or equivalent	M1	FT 'their 4120' (the mark is for the method) (= £123.6(0) + £4120)
(£)4243.6(0)	A1	CAO. Answer space takes precedence if completed, otherwise mark final answer for the amount If no marks, award SC1 for (£)3763.6(0) (from depreciation)
10(a) Alternative method *Sight of $1.03^2 \times 4000$* *1.0609×4000* *(£)4243.6(0)*	*M1* *A1* *A1*	*CAO. Answer space takes precedence if completed, otherwise mark final answer for the amount* *If no marks, award SC1 for (£)3763.6(0) (from depreciation)*
10(b)(i) $100 \times 42 \div (100 + 40)$ or $42 \div 1.4$ or equivalent	M1	
(£) 30	A1	CAO. Answer space takes precedence Accept a correct answer from trial and improvement

10(b)(ii) (Volume of gold = mass ÷ density =)
$6 \times 10^{-3} \times 1000 \div 20$
or $6 \div 20$
or $6 \times 10^{-3} \div (20 \div 1000)$
or $6 \times 10^{-3} \div 0.02$
or equivalent
	M2	Must be dimensionally correct
		
		M1 for any one of the following:
		• sight of $6 \times 10^{-3} \times 1000$ (= 6 g)
		• sight of $20 \div 1000$ (= 0.02 kg/cm^3)
		• method with incorrect place value, 'their mass' ÷ 'their density' provided that
		  • the only non-zero digit in 'their mass' = 6 and
		  • the only non-zero digit in 'their density' = 2
		e.g. $6 \times 10^{-3} \div 20$, $6 \times 10^{-3} \div 0.2$, $600 \div 20$, $6000 \div 20$

0.3 (cm^3) or $\frac{3}{10}$ (cm^3)	A1	CAO, allowing 3×10^{-1} (cm^3)

End of solutions