REVISE
.wales

1.10 — Percentage change, multipliers & reverse %

Mark schemes for the 1.10 question pack

Spec 1.8.1, 1.8.2 — Unit 1

SOLUTIONS · 2025 SPECIFICATION

Mark schemes for the 10 questions in the corresponding revise.wales question pack (34 marks total). Sources: legacy WJEC GCSE papers, WJEC SAM, and custom-authored mark schemes. Pack layout © revise.wales.

5.(a) (Length^2 =) $44^2 - 16^2$ or 44^2 = Length^2 + 16^2 (Length =) $\sqrt{1680}$ or Length^2 = 1680 41 (inches)	M1 A1 A2	 2 sig.fig. is required A1 for 41.0, 41.00 or 40.9878… rounded or truncated FT from M1 for the correctly evaluated square root of 'their 1680' provided 'their answer' < 44 (inches) for possible A2 or A1
5.(b) (100 ×) 710.40 ÷ 74 (£)960	M1 A1	
5.(c)(i) 23.52 p	B1	
5.(c)(ii) 27.44 p	B1	

Unit 1: Higher Tier Summer 2018			
1.(a)	12	B1	
1.(b)	$\times 1{\cdot}04^7$	B1	
1.(c)	$3^1/_5$	B1	

4(a) 0.02 × 3000 + 3000 (= £3060) 0.02 × 3060 + 3060 (£)3121.2(0)	M1 M1 A1	Allow for sight of 3060 (irrespective of labelling) or for sight of 3120 (simple interest) FT 'their 3060', mark is for the method (= £61.2(0) + £3060) CAO *Alternative:* *Sight of 1.02^2 × 3000* *M1* *1.0404 × 3000* *M1* *FT 'their 1.0404' incorrectly evaluated* *(£)3121.2(0)* *A1 CAO* If no marks, award SC1 for (£)2881.2(0) (from depreciation)
4(b) 72 ÷ 0.8 or 100 × 72 ÷ 80 (£) 90	M1 A1	 Accept an unsupported answer of (£)90 Allow M1, A1 for a (£)90 found from trial & improvement

1.(a)	$\times 0{\cdot}88^3$	B1	
1.(b)	$\frac{45{\cdot}9 - 42{\cdot}5}{42{\cdot}5}$ (= 0·08) OR $\frac{45{\cdot}9}{42{\cdot}5}$ (= 1·08)	M1	May be seen in parts.
	0·08 × 100 OR (1·08 × 100) – 100	m1	
	8(%)	A1	C.A.O. If no marks awarded allow SC1 for −8(%).

7. (Length of side = $\frac{76{\cdot}4}{4}$ =) 19·1(m)	B1	
(diagonal^2 =) $19{\cdot}1^2 + 19{\cdot}1^2$ diagonal^2 = 729·6(2) or (diagonal =) $\sqrt{729{\cdot}6(2)}$	M1 A1	F.T. 'their derived length of side' (not 76·4) Diagonal = 729·6(2) is A0 unless corrected in further work
(diagonal =) 27·0(..)(m) or 27(m)	A1	F.T. 'their 729.6' provided M1 awarded and their answer is greater than 19·1. Award SC2 for a final answer of 108(·0…)(m) (from using 76·4(m) as side length) BUT In this case there is no credit given for sight of 19·1.
Organisation and Communication	OC1	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
Accuracy of writing	W1	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.

4. $5x - 17 + 2x + 9 + x + 20 = 180$ $8x = 168$ $x = 21$ Substituting x = 21 into at least one expression. $(5x - 17 =)\ 88(°)\ \ (2x + 9 =)\ 51(°)\ \ (x + 20 =)\ 41(°)$ (So not a right-angled triangle)	M1 A1 A1 M1 A1	 F.T. from ax = b. Allow all 3 marks for x = 21. If $x \neq 21$ FT 'their derived value of x'. F.T. for this A1 if $x \geq 4$. Any **two** of these expressions correctly evaluated with no incorrect evaluation, provided the sum of the two found is > 90. (statement not required). *Note* ***If further work indicates that the values found are not treated as angles (e.g. showing $51^2 + 41^2 \neq 88^2$) then award final M0A0.***
Alternative method *$5x - 17 = 90$ OR $2x + 9 = 90$ OR $x + 20 = 90$* *$x = 21{\cdot}4$ AND $x = 40{\cdot}5$ AND $x = 70$* *Then verifying:* *If $x = 21{\cdot}4$: $5x - 17 + 2x + 9 + x + 20 = 183.2$* *AND* *If $x = 40{\cdot}5$: $5x - 17 + 2x + 9 + x + 20 = 336$* *AND* *If $x = 70$: $5x - 17 + 2x + 9 + x + 20 = 572$* *(So not a right-angled triangle)*	*M1* *A2* *A2*	 *Award A1 for any one of these:* *$x = 21{\cdot}4$ OR $x = 40{\cdot}5$ OR $x = 70$* *Award A1 for any one of these:* *If $x = 21{\cdot}4$: $5x - 17 + 2x + 9 + x + 20 = 183.2$* *OR* *If $x = 40{\cdot}5$: $5x - 17 + 2x + 9 + x + 20 = 336$* *OR* *If $x = 70$: $5x - 17 + 2x + 9 + x + 20 = 572$*
5. (AB =) $13{\cdot}8 \times \cos 41$ OR $13{\cdot}8 \times \sin 49$ $= 10{\cdot}4(\ldots)$ (cm)	M2 A1	M1 for $\cos 41 = \frac{AB}{13{\cdot}8}$ OR $\sin 49 = \frac{AB}{13{\cdot}8}$
Alternative method: ***Correct** use of 'two-step' method.* *(AB) = 10·4(…)(cm)*	*M2* *A1*	*A partial trigonometric method is M0.* *Accept an answer that rounds to 10·4(cm)*
6.a(i) $x^3 + 7x$	B2	B1 for sight of $x^3 + \ldots\ldots$ OR $\ldots\ldots + 7x$. Do not accept $x \times x \times x + x \times 7$ etc. Mark final answer.
6(a)(ii) $3x^2 - 4x - 15x + 20$ $3x^2 - 19x + 20$	B1 B1	Must be an expression. FT from an error in only one term (out of 4) only if of the form $ax^2 \pm bx \pm cx \pm d$.
6.(b)(i) $5n - 27 < n$ OR $n > 5n - 27$	B2	Allow B2 for an equivalent correct inequality. e.g. $4n - 27 < 0$. B1 if ≤ or ≥ used in a 'correct' inequality. OR B1 for $5n - 27 > n$ OR $n < 5n - 27$
6.(b)(ii) $4n < 27$ $n < \frac{27}{4}$ (Greatest number of clocks =) 6	B1 B1 B1	FT 'their inequality' if of equivalent difficulty. FT only from an < b OR an ≤ b OR an > b OR an ≥ b. FT only from n < c where c is positive OR n ≤ d where d is positive and not an integer An answer of 6 gains all 3 marks.
7.(a) N ÷ 1·04	B1	
7.(b) 248·832	B2	Allow B2 if 248·832 seen then corrected to a final answer of 249 or 248·8(..). If B2 not awarded, B1 for final answer of 249 or 248·(…) i.e. 248·832 not seen. B1 for sight of $100 \times 1{\cdot}2^5$ or for equivalent calculations, e.g. $144 \times 1{\cdot}2^3$ or $100 \times 1{\cdot}2 \times 1{\cdot}2 \times 1{\cdot}2 \times 1{\cdot}2 \times 1{\cdot}2$ (may be seen in stages) B1 for a final answer of 298·5984.

7.	$\frac{64}{160} \times 100$ OR $\frac{64}{1{\cdot}6}$ or equivalent $= 40$	M1 A1	Do not award M1 for 160% = 64. Award M1A1 for an embedded answer (e.g. $40 \times 1{\cdot}6 = 64$ or $\frac{64}{40} \times 100 = 160$), BUT only M1A0 if contradicted by stating original amount $\neq 40$. Unsupported 40 is awarded M1 A1. Unsupported 40% is awarded M0 A0.

7.(a)	$\times 0{\cdot}95^{n}$	B1	
7.(b)	Sight of $0{\cdot}83$ OR 83%	B1	Allow $(100 - 17 =)\ 83$
	$\frac{3569}{0{\cdot}83}$ or $\frac{3569}{83} \times 100$ or equivalent	M1	FT 'their $1 - 0{\cdot}17$' provided <1 or 'their $100\% - 17\%$' provided $< 100\%$.
	$= 4300$	A1	Award B1M1A1 for an embedded answer (e.g. $0{\cdot}83 \times 4300 = 3569$ or $\frac{3569}{4300} \times 100 = 83$), BUT only B1M1A0 if contradicted by stating original amount $\neq 4300$. Unsupported 4300 is awarded B1M1A1.

6. $\frac{34.2}{90} \times 100$ OR $\frac{34.2}{0.9}$ or equivalent = 38	M1 A1	Accept a **complete** and **convincing** method of trial and improvement. Award M1A1 for an embedded answer (e.g. 0·9 × 38 = 34·2 or $\frac{34.2}{38} \times 100$ = 90%), BUT only M1A0 if contradicted by stating original amount ≠ 38. Unsupported 38 is awarded M1A1

7(a) 2.425 m	B1	
7(b) Sight of 2.595 (m) or equivalent in cm or mm	B1	Award B1 for sight of 4×0.005 in an appropriate calculation Allow 0.004999(....) for 0.005, must clearly be a recurring 9 digit
4×2.595 or $4 \times 2.59 + 4 \times 0.005$ $(= 10.36 + 0.02)$ or equivalent	M1	Or equivalent in cm or mm If B0, FT provided unambiguously chosen: FT 2.59 < 'their 2.595' ≤ 2.6
10.38(0 m)	A1	CAO, must be given in metres
7(c) Complete method the calculate the percentage increase • $\frac{1.2 \times 10^8 - 2 \times 10^7}{2 \times 10^7}$ (× 100) • 5 (× 100) • $\frac{1.2 \times 10^8}{2 \times 10^7}$ (× 100) – 1(× 100) • 6 (× 100) – 1(× 100)	M2	Allow place value errors in writing given standard form numbers in full for M2 and M1 only M1 for any one of the following calculations or evaluations: • $1.2 \times 10^8 - 2 \times 10^7$ $(= 1 \times 10^8 = 100\,000\,000)$ • $\frac{1.2 \times 10^8}{2 \times 10^7}$ $(= 0.6 \times 10(\times 100)$ or $6(\times 100)$ or 600(%))
500 (%)	A1	CAO Answer space completing the statement takes precedence Accept equivalents 0.5×10^3 or 5×10^2 Accept an unsupported correct answer or a correct answer from reverse calculations