



GCSE MARKING SCHEME

SUMMER 2024

**GCSE
MATHEMATICS – NUMERACY
UNIT 2 – HIGHER TIER
3310U60-1**

About this marking scheme

The purpose of this marking scheme is to provide teachers, learners, and other interested parties, with an understanding of the assessment criteria used to assess this specific assessment.

This marking scheme reflects the criteria by which this assessment was marked in a live series and was finalised following detailed discussion at an examiners' conference. A team of qualified examiners were trained specifically in the application of this marking scheme. The aim of the conference was to ensure that the marking scheme was interpreted and applied in the same way by all examiners. It may not be possible, or appropriate, to capture every variation that a candidate may present in their responses within this marking scheme. However, during the training conference, examiners were guided in using their professional judgement to credit alternative valid responses as instructed by the document, and through reviewing exemplar responses.

Without the benefit of participation in the examiners' conference, teachers, learners and other users, may have different views on certain matters of detail or interpretation. Therefore, it is strongly recommended that this marking scheme is used alongside other guidance, such as published exemplar materials or Guidance for Teaching. This marking scheme is final and will not be changed, unless in the event that a clear error is identified, as it reflects the criteria used to assess candidate responses during the live series.

WJEC GCSE MATHEMATICS - NUMERACY

SUMMER 2024 MARKING SCHEME

Unit 2: Higher Tier	Mark	Comments
1(a)(i) 18 to 24 hours	B1	
1(a)(ii) 97	B1	
1(a)(iii) 13	B1	
1(a)(iv) States or unambiguously implies 'No' with a reason, e.g. 'no people in group 0 to 6 hours'	E1	Allow 'No' with e.g. 'the point before 6 hours is at zero' Do not allow 'Can't tell' with e.g. 'it is grouped data' Do not accept "No' with e.g. 'it is grouped data' (unless explaining why) 'there is no point at 6' '6 hours has a frequency of 0' 'it does not match a group of people' 'the first point is at 0 and the second one is at 20' 'the first plot is at 20' 'the first plot is at 9 hours' 'the first plot above 0 is at 9 hours' 'there is no information at 6 hours, it starts at 9 hours' 'the shortest time is 9 hours'
1(b) Sight of 22.5, 25.5, 29.5 and 31.5 (mm) 22.5 + 25.5 + 29.5 + 31.5 or 22+25+29+31 + 4 × 0.5 or equivalent 109 (mm)	B1 M1 A1	Award B1 for sight of 4×0.5 in an appropriate calculation Allow 0.4999(...) for 0.5, must clearly be a recurring 9 digit If B0, FT provided unambiguously chosen: 22 < 'their 22.5' ≤ 23, 25 < 'their 25.5' ≤ 26, 29 < 'their 29.5' ≤ 30, and 31 < 'their 31.5' ≤ 32, CAO. Ignore incorrect units given Ignore any working for least possible thickness also given, e.g. 21.5 + 22.5 + 28.5 + 30.5 = 105

Unit 2: Higher Tier	Mark	Comments
2(a) <u>Method not directly working with a stated or omitted number of hours difference</u> $0.324 \times 8 \times (\mathbf{10 \text{ or } 12}) \times 7 \times 80 \div 1000$ $0.324 \times 8 \times (\mathbf{12 \text{ or } 10}) \times 7 \times 80 \div 1000$ with the intention to subtract (Saving is 17.418... – 14.515...=) (£) 2.90	M3 m1 A1	Methods may be shown in stages or be embedded <u>Use this method if 2 separate numbers of hours are used, which may not be correct, i.e. #12 and #10, with or without indication of subtraction</u> Penalise every additional spurious term by reducing the count of correct terms by 1* Allow '× 32.4' for '× 0.324' M2 for any 4 or 5 correct terms* M1 for any 3 correct terms* Must be an indication of the intention to subtract, in either order FT from 5 (or 6) consistent correct terms for use of - the other value 10 or 12 respectively 'their number of hours' are 13 and 11 (incorrect) Award m0 if inconsistent, i.e. not an equal number of consistent correct terms* between the expressions. Mark 'their better stated calculation' first if both are given CAO All working must be checked, do not award 5 marks for £2.90 from incorrect working.
2(a) <u>Alternative method:</u> <u>Method directly working with a stated or omitted number of hours difference</u> $0.324 \times 8 \times 2 \times 7 \times 80 \div 1000$ (Saving is) (£) 2.90	M4 A1	Methods may be shown in stages or be embedded <u>Use this method if a single number of hours is used, which may not be correct, i.e. #2, or if the number of hours is omitted</u> Do not allow 2 hours as a correct term from incorrect working, e.g. 13 – 11 = 2 Penalise every additional spurious term by reducing the count of correct terms by 1* Allow '× 32.4' for '× 0.324' M3 for any 5 correct terms* M2 for any 4 correct terms* M1 for any 3 correct terms* CAO All working must be checked, do not award 5 marks for £2.90 from incorrect working.
Organisation and communication <i>Organised to include labels, e.g.</i> Number of hours Total number of kWh Cost per day Cost per week Writing <i>Units to include, e.g.</i> kW kWh £	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 explanations 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.

Unit 2: Higher Tier	Mark	Comments
2(b) Height = $\tan 68^\circ \times 3.3$ or height = $\frac{\sin 68^\circ \times 3.3}{\sin(90 - 68)^\circ}$ 8.167... (m) or 8.17 (m) or 8.2 (m)	M2 A1	Or alternative correct full method, isolating height M1 for $\tan 68^\circ = \text{height} / 3.3$ or $\frac{\text{height}}{\sin 68^\circ} = \frac{3.3}{\sin(90 - 68)^\circ}$ or equivalent Allow 8(m), 8.1(m) 8.16(m) from correct working
3(a) Midpoints 1, 4, 7, 11, 16 $1 \times 8 + 4 \times 12 + 7 \times 20 + 11 \times 4 + 16 \times 6$ $(= 8 + 48 + 140 + 44 + 96)$ $(= 336)$ $\div 50$ 6.72 or 6.7 (walks)	B1 M1 m1 A1	FT 'their midpoints' provided at least 4 lie within the appropriate group, including bounds throughout Use of lower bounds gives 276 Use of upper bounds gives 396 Allow rounded to 7 (walks) from appropriate working Use of lower bounds gives 5.5(2 walks) or 6 (walks) Use of upper bounds gives 7.9(2 walks) or 8 (walks)
3(b) 06(:)53 or 6(:)53 a.m.	B1	Allow 06(:)53 a.m. or 6(:)53 Do not accept (0)6(:)53 p.m.

Unit 2: Higher Tier	Mark	Comments
3(c) $(\text{Height})^2 = 7.6^2 - (18.8 - 12.6)^2$ or $(\text{Height})^2 = 7.6^2 - 6.2^2$ or $\cos^{-1}\left(\frac{18.8-12.6}{7.6}\right) = 35(.3345\dots)^\circ$ and $\sin 35(.33\dots)^\circ = \frac{\text{Height}}{7.6}$ or $\tan 35(.33\dots)^\circ = \frac{\text{Height}}{6.2}$ $\text{Height}^2 = 19.32$ or $(\text{Height} =) \sqrt{19.32}$ or $(\text{Height} =) 7.6 \times \sin 35(.33\dots)^\circ$ or $(\text{Height} =) 6.2 \times \tan 35(.33\dots)^\circ$ $(\text{Height} =) 4.39(54\dots \text{ m})$ or $4.4(\text{m})$ (Volume of concrete) $\frac{1}{2} \times (12.6 + 18.8) \times 4.4 \times 50$ or $\frac{1}{2} \times 31.4 \times 4.4 \times 50$ or $\frac{1}{2} \times (18.8 - 12.6) \times 4.4 \times 50 + 12.6 \times 4.4 \times 50$ or $\frac{1}{2} \times 6.2 \times 4.4 \times 50 + 12.6 \times 4.4 \times 50$ (Volume of concrete) Answer in the range $3450 \text{ (m}^3\text{)}$ to $3455 \text{ (m}^3\text{)}$	M2 A1 A1 M2 A1	M1 for sight of $18.8 - 12.6$ with - any attempt to use Pythagoras' Theorem (including summing rather than subtraction) $\cos^{-1}\left(\frac{18.8-12.6}{7.6}\right) = 35(.3345\dots)^\circ$ and an attempt to use sine or tan Do not allow $4.3(\text{m})$ from premature rounding of $35.3345\dots^\circ$ May be implied in further working Provided at least M2 previously awarded, FT from $\sqrt{\text{'their } 19.32'}$ provided $< 7.6 \text{ (m)}$ FT 'their derived 4.4' provided 'their derived 4.4' < 7.6 'their derived 4.4' $\neq 6.2$ 'their derived 4.4' $\neq \text{'their } 18.8 - 12.6'$ May be seen in stages, e.g. with '$\times 50$' in further working M1 for any one of the following: (Area of cross-section) $\frac{1}{2} \times (12.6 + 18.8) \times 4.4$ (= 69.08 or 69.1m^2) $\frac{1}{2} \times (18.8 - 12.6) \times 4.4 + 12.6 \times 4.4$ (= $13.64\text{m}^2 + 55.44\text{m}^2$) (Volume cuboid) $12.6 \times 4.4 \times 50$ (= $55.44 \times 50 = 2772 \text{ m}^3$) (Volume triangular prism) $\frac{1}{2} \times (18.8 - 12.6) \times 4.4 \times 50$ (= $13.64 \times 50 = 682 \text{ m}^3$) FT from previous M2 only and 'their derived 4.4' from an attempt to use Pythagoras' Theorem or cosine followed by sine On FT from M2, allow a similar range from rounding or truncation If previous M0 A0, award SC1 for an answer of $4867 \text{ (m}^3\text{)}$ from 'their 4.4' = 6.2

Unit 2: Higher Tier	Mark	Comments
4(a)(i) 5×10^8 or 5.0×10^8	B1	
4(a)(ii) $140 \times 10^9 \div 300 \div 24$ 19 400 000 (kg per hour)	M1 M1 M1 A2	<u>Method marks can be awarded in any order but the operation must be unique (not contradicted or repeated in the working)</u> '$\div 7200$' implies final M1 M1 Award M3 for sight of $\frac{140 \times 10^9}{300 \times 24}$ or $\frac{1.4 \times 10^{11}}{7.2 \times 10^3}$ or equivalent A1 for sight of 19 444 444(.44...) or for incorrect rounding or truncation of this answer FT, for A1, from M1 M0 M1 or M1 M1 M0, including if an incorrect 3rd term is included, for correct evaluation of 'their calculation' and expressing 'their final answer' correct to 3 significant figures provided rounding is required, e.g. $140 \times 10^9 \div 300$ leading to 467 000 000 $140 \times 10^9 \div 24$ leading to 5 830 000 000 $140 \times 10^9 \div 300 \div 12$ leading to 38 900 000 ($140 \times 10^9 \div 300 \times 24 = 11\,200\,000\,000$, $140 \times 10^9 \div 24 \times 300 = 1\,750\,000\,000\,000$, <i>no rounding required, hence A0</i>) FT, for A1, from M0 M1 M1 for an answer of 194 000, 1 940 000, 194 000 000, or 1 940 000 000, provided it is from a correct evaluation of 'their calculation' If no marks, award SC1 for equivalent operations used without 140, i.e. $\frac{10^9}{300 \times 24}$ or $10^9 \div 300 \div 24$ or equivalent
4(b)(i) (Venus orbit) $2 \times \pi \times 1.08 \times 10^8$ or 678 000 000 to 680 000 000 or 6.78×10^8 to 6.8×10^8 (To find distance travelled in one day) $\div 224.7$ (Distance in one day) $3.(0....) \times 10^6$	M1 M1 A2	FT 'their derived orbit' provided π is involved in 'their calculation of Venus orbit' CAO A1 for any one of the following answers: (not in standard form) 3 000 000 (km) (incorrect standard form) e.g. 30×10^5 (in the range) 3 017 000 (km) to 3 026 300 (km) (in terms of π) e.g. $961\,281.7089\pi$ (km) ($\pi \times 1.08 \times 10^8 \div 224.7 =$) $1.5(...) \times 10^6$ If no marks, award SC1 for an answer of $4.8(0...) \times 10^5$ (from $1.08 \times 10^8 \div 224.7$) or $9.6(1...) \times 10^5$ (from $2 \times 1.08 \times 10^8 \div 224.7$)

Unit 2: Higher Tier	Mark	Comments
4(b)(ii) 368 187 456 (km ²)	B3	ISW Allow appropriate rounding from correct working, such as 368 187 500 or 368 000 000 or 370 000 000 B2 for any one of the following: • $8 \times 460\,234\,320 \div 10$ • $7 \times 460\,234\,320 \div 10 + 460\,234\,320 \div 10$ • $460\,234\,320 - 2 \times 460\,234\,320 \div 10$ • $(2 \times 460\,234\,320 \div 10 =) 92\,046\,864$ • $(7 \times 460\,234\,320 \div 10 =) 322\,164\,024$ B1 for any one of the following, including embedded in other working: • $460\,234\,320 \div 10$ • $(460\,234\,320 \div 10 =) 46\,023\,432$ <i>If errors in calculating $1 + 7$ or $1 + 2 + 7$ are seen, then award B2 or B1 as appropriate e.g.</i> • $1 + 7 = 9, 9 \times 460\,234\,320 \div 10$ B2 • $9 \times 460\,234\,320 \div 10$ B1 <i>(embedded $460\,234\,320 \div 10$)</i>

Unit 2: Higher Tier	Mark	Comments
5(a) (Number of gallons used =) $\frac{36}{48} + \frac{65 \times 1\frac{24}{60}}{35} \quad \text{OR} \quad \frac{36}{48} + \frac{65 \times 1.4}{35}$ (= 0.75) (= 2.6) = 3.35 (gallons)	M3 A1	Allow M2 for $\frac{36}{48} + \frac{65 \times 1.24}{35}$ (= 0.75 + 2.30...) OR sight of $\frac{65 \times 1.4}{35}$ or equivalent M1 for sight of $\frac{36}{48}$ or sight of 0.75 provided not from incorrect work Allow M1 for sight of $\frac{65 \times 1.24}{35}$ OR $\frac{65 \times 84}{35}$ (=156) CAO Allow 3.4 (gallons) provided no incorrect work seen
5(b) 3.35 $\times 8 \div 1.75 \times 1.49$ = (£)22.81(828...) or (£)22.82	M2 A1	FT 'their 3.35 (gallons)' from (a) Allow use of the conversion 1 litre = 1.75 to 1.76 pints M1 for the correct use of 3.35 with any 2 terms OR M1 for $8 \div 1.75 \times 1.49$ OR if one of the direct conversions from gallons to litres used as listed below, M1 for any one of the following: • $3.35 \times (4.544 \text{ to } 4.572)$ • $1.49 \times (4.544 \text{ to } 4.572)$ • $3.35 \times 1.49 \times \text{'their } 4.544 \text{ to } 4.572\text{'}$ but using a value <u>just</u> outside this range e.g. 4.6 • $3.35 \div (0.2187 \text{ to } 0.22)$ • $1.49 \div (0.2187 \text{ to } 0.22)$ • $3.35 \times 1.49 \div \text{'their } 0.2187 \text{ to } 0.22\text{'}$ but using a value <u>just</u> outside this range e.g. 0.218 Must be from M2 Strict FT of their correct conversion between gallons and litres. Answers will be in the range (£)22.68 to (£)22.82 Allow the conversion into litres from any of the following also $\frac{1 \text{ pint} = 568 \text{ to } 572 \text{ ml}}{3.35 \times 8 \times (0.568 \text{ to } 0.572)} \quad \frac{1 \text{ gallon} = 4.544 \text{ to } 4.572 \text{ litres}}{3.35 \times (4.544 \text{ to } 4.572)}$ $\frac{1 \text{ litre} = 0.2187 \text{ to } 0.22 \text{ gallons}}{3.35 \div (0.2187 \text{ to } 0.22)}$

Unit 2: Higher Tier	Mark	Comments
6(a) $\frac{360 - 38}{360} \times \pi \times (54^2 - 50^2) \quad (\times 2) \quad \text{or equivalent}$ (= 1168.35 to 1169.11 or $16744\pi/45$) = 2336.7 to 2338.21 or $33488\pi/45$ (mm³) (Number of C-clips =) $\frac{1500000}{2336.7 \text{ to } 2338.21}$ = 641 (C-clips)	M2 A1 M1 A1	Accept use of values of π from 3.14 to 3.142 Note: Accept $(54^2 - 50^2)$ written as $(54 + 50) \times (54 - 50)$ M1 for one of the following: $\frac{360 - 38}{360} \times \pi \times 54^2 \quad (\times 2) \quad (= 8189.7 \text{ to } 8195)$ (= $13041\pi/5$) $\frac{360 - 38}{360} \times \pi \times 50^2 \quad (\times 2) \quad (= 7021.3 \text{ to } 7026)$ (= $20125\pi/9$) $\frac{38}{360} \times \pi \times (54^2 - 50^2) \quad (\times 2) \quad (= 137.8 \text{ to } 138)$ (= $1976\pi/45$) CAO If no marks yet awarded, SC1 for any one of the following $\frac{360 - 38}{360} \times \pi \times (27^2 - 25^2) \quad (\times 2) \quad (= 292 \text{ to } 292.3)$ (= $4186\pi/45$) $\pi \times (54^2 - 50^2) \times 2 \quad (= 2612 \text{ to } 2614.15 \text{ or } 832\pi)$ FT 'their 2336.7 to 2338.21' provided at least 1 mark previously awarded Only FT from M2M1 or M1M1 previously awarded On FT, should be an integer obtained from the truncation of their answer
6(a) <u>Alternative method for the first 3 marks:</u> $\frac{360 - 38}{360} \times \frac{(2 \times \pi \times 54 + 2 \times \pi \times 50)}{2} \times (54 - 50) \quad (\times 2)$ = 2336.7 to 2338.21 (mm³)	M2 A1	Accept use of values of π from 3.14 to 3.142 M1 for one of the following: $\frac{360 - 38}{360} \times (2 \times \pi \times 54 + 2 \times \pi \times 50) \times (54 - 50) \times 2$ (= 4673.4 to 4676.42 or $66976\pi/45$) $\frac{360 - 38}{360} \times \frac{(\pi \times 54 + \pi \times 50)}{2} \times (54 - 50)$ (= 584.1 to 584.6 or $8372\pi/45$) $\frac{38}{360} \times \frac{(2 \times \pi \times 54 + 2 \times \pi \times 50)}{2} \times (54 - 50) \quad (\times 2)$ (= 137.8 to 138 or $1976\pi/45$) CAO If no marks yet awarded, SC1 for any one of the following: $\frac{360 - 38}{360} \times \frac{(2 \times \pi \times 27 + 2 \times \pi \times 25)}{2} \times (27 - 25)$ (= 292 to 292.3 or $4186\pi/45$) $\frac{(2 \times \pi \times 54 + 2 \times \pi \times 50)}{2} \times (54 - 50) \times 2$ (= 2612 to 2614.15 or 832π)

Unit 2: Higher Tier	Mark	Comments
7(a) $(x =) \frac{5.4 \times \sin 131^\circ}{\sin 32^\circ}$ $= 7.69(06\dots) \text{ or } 7.7 \text{ (km)}$	M2 A1	M1 for $\frac{x}{\sin 131^\circ} = \frac{5.4}{\sin 32^\circ}$ or equivalent OR M1 for $\frac{7.7}{\sin 131^\circ} = \frac{5.4}{\sin 32^\circ}$ or equivalent From M1, if 7.69(06...) seen award M2A1 From M1, if only 7.7 seen award M1A0
7(b) $(\text{Bottom angle} =) \cos^{-1}\left(\frac{6.3^2 + 2.1^2 - 7.7^2}{2 \times 6.3 \times 2.1}\right)$ $= 125(.03\dots) (^\circ)$ $(\text{Bearing} =) 125(.03\dots) - (180 - 120)$ $= 065 (^\circ)$	M2 A1 M1 A1	Allow use of 7.69(06...) for 7.7 Note: Use of sine rule with the angle on the left of the triangle of 13° can lead to a bearing of 064° , <u>if seen please escalate</u> $= \cos^{-1}(-31/54)$ or equivalent M1 for $7.7^2 = 6.3^2 + 2.1^2 - 2 \times 6.3 \times 2.1 \times \cos(\text{bottom angle})$ - OR $\cos \text{bottom angle} = \left(\frac{6.3^2 + 2.1^2 - 7.7^2}{2 \times 6.3 \times 2.1}\right)$ 124.6(5...) ($^\circ$) if 7.69(06...) used Use of sine rule can lead to an answer of 124.4(29...) FT 'their 125(.03...)' provided a clear attempt seen to use the cosine rule to calculate the angle at the bottom of the triangle Allow an answer of 065.0(3...) ($^\circ$) An answer of 65 ($^\circ$) implies M1A0
7(b) <u>Alternative method:</u> $(\text{Right side angle} =) \cos^{-1}\left(\frac{7.7^2 + 2.1^2 - 6.3^2}{2 \times 7.7 \times 2.1}\right)$ $= 42(.06\dots) (^\circ)$ $(\text{Bearing} =)$ $180 - (180 - (90 + 180 - 131 - 32) + 42(.06\dots))$ or $180 - (180 - (90 + 17) + 42(.06\dots))$ or $180 - (73 + 42(.06\dots))$ $= 065 (^\circ)$	M2 A1 M1 A1	Allow use of 7.69(06...) for 7.7 Note: Use of sine rule with the angle on the left of the triangle of 13° can lead to a bearing of 064° , <u>if seen please escalate</u> $= \cos^{-1}(49/66)$ or equivalent M1 for $6.3^2 = 7.7^2 + 2.1^2 - 2 \times 7.7 \times 2.1 \times \cos(\text{right side angle})$ - OR $\cos(\text{right side angle}) = \left(\frac{7.7^2 + 2.1^2 - 6.3^2}{2 \times 7.7 \times 2.1}\right)$ 42.3(...) ($^\circ$) if 7.69(06...) used FT 'their 42(.06...)' provided a clear attempt seen to use the cosine rule to calculate the angle on the right side of the triangle Allow an answer of 065.0(3...) ($^\circ$) An answer of 65 ($^\circ$) implies M1A0

Unit 2: Higher Tier	Mark	Comments
7(c) (Area factor $\Rightarrow$) $1 - 0.19$ OR $\frac{1}{1 - 0.19}$ (= 0.81) (= 1.2345...) (Scale factor $\Rightarrow$) $\sqrt{1 - 0.19}$ OR $\sqrt{\frac{1}{1 - 0.19}}$ (= 0.9) (= 1.1(1...)) (Length of Tanvi's map $\Rightarrow$) $\sqrt{1 - 0.19} \times 33$ OR $33 \div \sqrt{\frac{1}{1 - 0.19}}$ = 29.7 (cm)	B1 B1 M1 A1	Or percentage, fraction or ratio equivalent to 0.81 or 1.2345... May be implied in further possibly incorrect working e.g. 33×0.81, $33 \times (1 - 0.19)$, $33 - 33 \times 0.19$ (=26.73) Accept a scale factor of 10:9 or 9:10 or equivalents CAO Accept an answer of 30 (cm) from correct working If no marks awarded, SC1 for any one of the following: $33 \times \sqrt{0.19}$ (= 14.3(843...cm) $33 \div \sqrt{1.19}$ (= 30.2(510...cm)
7(d) Tangent drawn at time 20 minutes Idea of increase in y $\div$ increase in x Correctly evaluated gradient for their tangent (between 0.04 and 0.1) $\frac{\text{'their gradient'} \times 60}{1.6}$ or $\frac{\text{'their gradient'} \times 5 \times 60}{8}$ or equivalent Correctly evaluated speed in mph for 'their gradient' (between 1.5 and 3.75 mph)	M1 m1 A1 M1 A1	An appropriate tangent resulting in a gradient between 0.04 and 0.1 Differences need to be attempted for both Allow m1A0 if one difference has been incorrectly calculated An attempt may have been made to convert into miles and/or hours Dependent on M1m1 awarded Allow their correctly evaluated gradient to be a fraction that may include a decimal e.g. 1.3/20 May be embedded within further work Mark final answer FT 'their gradient' provided it's an increase in y $\div$ increase in x from an attempt made at drawing a tangent at time 20 minutes Do not award if previous incorrect attempt/s made at converting one or both differences into miles and/or hours Accept appropriate rounding

Unit 2: Higher Tier	Mark	Comments
8(a) 5000×1.006^{18} $= (£) 5568.44(1446)$	M1 A1	If no marks awarded, SC1 for $(5000 \times 1.006^{17} =) (£)5535.23(0\dots)$ or $(£)5535.23$
8(b) $(1 + x)^2 - 1 = 0.04$ or equivalent $1 + x = \sqrt{1.04}$ or equivalent $x = 0.01(980\dots)$ (Interest rate every 6 months $\Rightarrow$) 1.98 (%)	M1 m1 A1 A1	Allow a place value error in the 0.04 for at most M1m1A0A0 Accept any letter used for x CAO
8(b) <u>Alternative method:</u> <i>i is the nominal annual rate</i> $\left(1 + \frac{i}{2}\right)^2 - 1 = 0.04$ or equivalent $1 + \frac{i}{2} = \sqrt{1.04}$ or equivalent $i = 0.03(960\dots)$ or 3.96(0...)% (Interest rate every 6 months $\Rightarrow$) 1.98 (%)	M1 m1 A1 A1	Allow a place value error in the 0.04 for at most M1m1A0A0 Accept any letter used for i May be implied in further working If their final answer comes from $\sqrt{1.04} - 1$ AND 0.03(960...) or 3.96(...) % not seen, then award this A1 for 0.01(980...) or 1.98(03...)(%) rounded or truncated CAO