REVISE
.wales

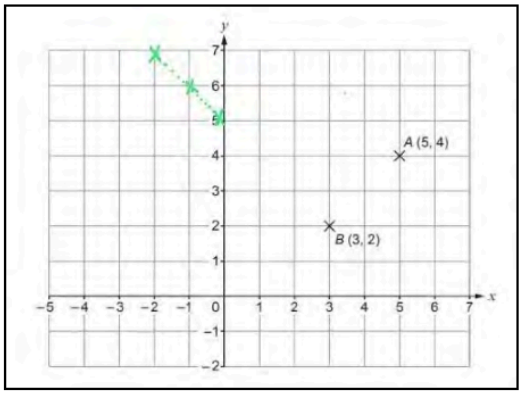
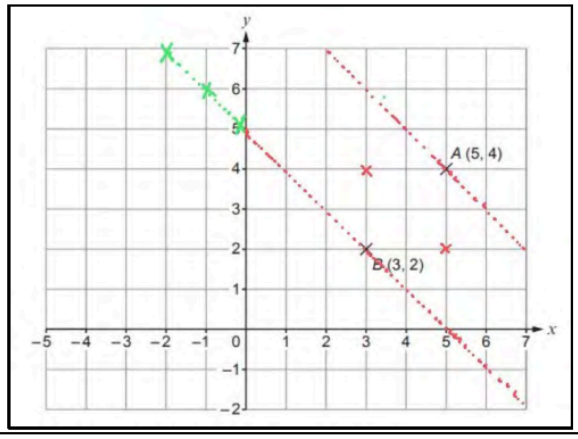
F1.03 — VAT, discount, profit/loss & buying by instalments

Mark schemes for the F1.03 question pack

Spec 1.8.2 — Unit 1

SOLUTIONS · 2025 SPECIFICATION

Mark schemes for the 10 questions in the corresponding revise.wales question pack (36 marks total). Sources: legacy WJEC GCSE papers, WJEC SAM, and custom-authored mark schemes. Pack layout © revise.wales.

		• use appropriate terminology, units, etc
12. (a) (1, 0)	B2	Award B1 for one of the following: • if *C* clearly identified on grid but coordinates not given or are incorrect • for an answer of (4, 3) (midpoint of *AB*) • for an answer of $(1x, 0y)$ and point not identified.
12. (b) (-1, 6) OR (-2,7) 	B2	Award B2 for any point that satisfies the conditions e.g. (-1.5, 6.5) Award B1 for one of the following: • if *D* identified on grid in a correct position but coordinates not given or are incorrect OR • for the coordinates of any point that creates a right-angled triangle with AB as one side e.g. (0,5) (1,4) (2,3) (4,1) (5,0) (6,-1) (7,-2) (3,4) (5,2) (2,7) (3,6) (4,5) (6,3) (7,2) 

(Expected number of winners = 7/12 × 228) *133 (winners)*	*B1*	*If 7/12 or correct % or decimal seen in part (c), it must be used for this B1.* *FT 'their 7/12' if less than 1 × 228* *Allow 133/228 or '133 out of 228'* *Must be whole number* *Award B0 for* *7/12 × 228 = 0·58(333…) × 228 = 132 winners.* *Award B0 for* *7/12 × 228 = 0·6 × 228 = 136 or 137 winners.*
(Expected number that don't win = 228 – 133) *95 (non-winners)*	*B1*	*FT 228 – 'their 133' (provided < 228)*
(Amount taken = 95 × £2.50 =) *(£)237.5(0)*	*B1*	*FT £2.50 × 'their 95' provided < 133*
(Expected profit = 95 × £2.50 – 133 × £1 =) *(£)104.5(0)*	*B1*	*(£)237.5(0) – (£)133* *FT 'their (£)237.5(0)' – 'their (£)133'* *Award B1B1B1B0 for sight of* *95 × £2.50 – 133 × £1 with an incorrect final answer.* *If the FT results in a loss, the 'Loss' must be stated, or the answer left as a negative*

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'

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'

4(a) (Sale price) 45 – 0.18 × 45 or 45 × (1 – 0.18) or 45 – 8.1(0) or 45 × 0.82 (£)36.9(0)	M1 A1	 May be seen or implied in further working
(Maggie's mum pays) 8 × 36.9(0) ÷ (8 + 1) or 36.9(0) – 36.9(0) ÷ (8 + 1) 8 × 4.1(0) or 36.9(0) – 4.1(0) (£)32.8(0)	M1 A1	FT 'their £36.90' On FT allow rounded or truncated to a penny
4(a) Alternative method *(Maggie's mum's share of original price)* *8 × 45 ÷ (8 + 1) or 45 – 45 ÷ (8 + 1)* *(£) 40*	*M1* *A1*	 *May be seen or implied in further working*
(Maggie's mum pays) *40 – 0.18 × 40 or 40 × (1 – 0.18)* *or 40 – 7.2(0) or 40 × 0.82* *(£)32.8(0)*	*M1* *A1*	*FT 'their £40'* *On FT allow rounded or truncated to a penny*
4(b) (Area) ½ × 1.5 × (3.1 + 4.5) 5.7 (m^2)	M1 A1	 Accept rounding to 6 (m^2) May be seen or implied in further working
(Charge) 2.5(0) × 5.7	M1	FT 'their 5.7' (including if previously rounded to 6), including if 'their 5.7' is not an area Allow if 'their area' is costed in parts provided there is an attempt to sum all of the part costs, provided 'their 5.7' ≠ 1.5, 3.1 or 4.5
(£) 14.25	A1	CAO

9(a) (Sale price) 45 – 0.18 × 45 or 45 × (1 – 0.18) or 45 – 8.1(0) or 45 × 0.82 (£)36.9(0)	M1 A1	 May be seen or implied in further working
(Maggie's mum pays) 8 × 36.9(0) ÷ (8 + 1) or 36.9(0) – 36.9(0) ÷ (8 + 1) 8 × 4.1(0) or 36.9(0) – 4.1(0) (£)32.8(0)	M1 A1	FT 'their £36.90' On FT allow rounded or truncated to a penny
9(a) Alternative method *(Maggie's mum's share of original price)* *8 × 45 ÷ (8 + 1) or 45 – 45 ÷ (8 + 1)* *(£) 40*	*M1* *A1*	 *May be seen or implied in further working*
(Maggie's mum pays) *40 – 0.18 × 40 or 40 × (1 – 0.18)* *or 40 – 7.2(0) or 40 × 0.82* *(£)32.8(0)*	*M1* *A1*	*FT 'their £40'* *On FT allow rounded or truncated to a penny*
9(b) (Area) ½ × 1.5 × (3.1 + 4.5) 5.7 (m^2)	M1 A1	 Accept rounding to 6 (m^2) May be seen or implied in further working
(Charge) 2.5(0) × 5.7	M1	FT 'their 5.7' (including if previously rounded to 6), including if 'their 5.7' is not an area Allow if 'their area' is costed in parts provided there is an attempt to sum all of the part costs, provided 'their 5.7' ≠ 1.5, 3.1 or 4.5
(£) 14.25	A1	CAO

7(a) B and H in either order	B2	B1 for either B or H selected
7(b)(i) $\frac{42-30}{30}$ (× 100) or $\frac{42}{30}$ (× 100) – 1 (× 100) 40 (%)	M1 A1	Or full reverse method, e.g. • 20% of £30 is 30 ÷ 5 = £6, with either 6 × 2 = (£)12 or 6 × 7 = (£)42 • 10% of £30 is 30 ÷ 10 = £3, with either 3 × 4 = (£)12 or 3 × 14 = (£)42 Allow an answer of £40 from correct working If no marks, award SC1 for an answer of 140(%)
7(b)(ii) (Percentage profit is) $\frac{9\times42-10\times30}{10\times30}$ (× 100) or $\frac{9\times12-30}{10\times30}$ (× 100) or $\frac{9\times42}{10\times30}$ (× 100) – 1 (× 100) or $\frac{378}{300}$ (× 100) – 1 (× 100) or 1.26 (× 100) – 1 (× 100) or equivalent 26 (%) **AND** states 'profit'	M2 A2	Allow a reverse method of finding percentages of 300 used, these percentages must be correct and when added (or subtracted) could lead to an answer of 26% e.g. (2 × 10% =) 20% of 300 is 60 and 6% of 300 is 18 M1 for any one of the following: • (difference between sales and costs) 9 × 42 – 10 × 30 (= 378 – 300) • (sales) (£) 378 AND (cost) (£) 300 • (difference between sales and costs) (£) 78 Mark final answer A1 for any one of the following: • 26(%) • $\frac{78}{300}$ (× 100) or equivalent • $\frac{378}{300}$ × 100 = 126 (%) • $\frac{378}{300}$ = 1.26 • ('their $\frac{9\times42'-10\times30}{10\times30}$') × 100 correctly evaluated and given as a percentage, allow if an error in the decimal part of their answer
7(b)(iii) 8	B1	

5(a) 40 × 1(.)75 ÷ 5 or 1(.)75 × 8 or equivalent	M2	May be shown in stages M1 for any of the following: • 40 ÷ 5 • sight of an appropriate 8 • 40 × 1(.)75 (= 70 or 7000) • 1(.)75 ÷ 5 (= 0.35 or 35)
(£)14 or 1400(p)	A1	If units are given they must be correct

5(b) Sight of $280 \div 4$ or $3 \times 280 \div 4$ Oil 210 (ml) Vinegar 70 (ml)	M1 A1 A1	 Answer space takes precedence Answer space takes precedence If M1 awarded but 210 (ml) and 70 (ml) are reversed, allow A0 A1 If M1 awarded with A0, A0 due to incorrect evaluation of $280 \div 4$ then also award SC1 if • 'their 210' + 'their 70' = 280, or • 'their 210' = 3 × 'their 70'
5(c) (Sells for a total of) $40 \times (0.)90$ OR (cost for 1 portion) $2400 \div 40$ or $24 \div 40$ (Sells for a total of $40 \times (0.)90$) (£)36 or 3600(p) OR (cost for 1 portion $24 \div 40$) 60 (p) or (£)0.60 (% profit) $\frac{36-24}{24} \times 100$ or $\frac{(0.)90-(0.)60}{(0.)60} \times 100$ or $\frac{36}{24} \times 100 - 1 \times 100$ or $\frac{(0.)90}{(0.)60} - 1 \times 100$ or equivalent 50 (%)	M1 A1 m1 A1	 If units are given they must be correct Must be consistent place value, i.e. use of £ or p FT correct use of 'their $40 \times (0.)90$' or 'their $24 \div 40$' Accept a correct answer provided not from incorrect working, may be from reverse calculations or unsupported

6. (Total of items 55 + 18 + 12 =) (£) 85 OR (Individual discounts) (£) 8.25, (£) 2.7(0), (£) 1.8(0) OR (Discounted costs) (£) 46.75, (£) 15.3(0), (£) 10.2(0)	B1	All 3 discounts are required, not necessarily in a sum OR Allow 2 of the 3 individual discounts correct in a sum All discounted costs required, not necessarily in a sum OR Allow 2 of the 3 discounted costs correct in a sum
(Total Discount 0.15 × 85 =) (£) 12.75 OR (Total discounted cost 0.85 × 85 =) (£) 72.25	B1	FT from 'their 55 + 18 + 12' incorrectly evaluated May imply previous B1 Allow an embedded £12.75 from sight of 22.70 (= 12.75 + 9.95) or 85 – 82.20 (= 2.80) Allow an embedded £72.25 from sight of 62.30 (= 72.25 – 9.95) or 82.20 (= 94.95 – 12.75)
(Overall saving) (12.75 – 9.95 or 85 – 9.95 – 72.25 =) (£) 2.8(0)	B2	CAO provided not from incorrect working If units are given they must be correct B1 for any one of the following: • 12.75 – 9.95 • 85 – 9.95 – 72.25 • an answer of (£)82.2(0) • 85 – 12.75 + 9.95 • 94.95 – 12.75 • 72.25 + 9.95 OR FT for possible B1, provided 'their overall saving' > 0: • 'their 55 + 18 + 12' incorrectly evaluated • 'their total discount' • 'their discounted costs' for a correctly evaluated answer equivalent to 'their total discount' – 9.95, or 'their 55 + 18 + 12' – 9.95 – 'their total discounted costs' If no marks, award SC1 for sight of (£)94.95 (= 85 + 9.95) or (£)75.05 (= 85 – 9.95)

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) <u>Alternative method</u> *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 <u>and</u>
		  • 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)

10(a)(i) States 80 (and) 100 (seconds) AND indicates 'Yes'	B1	Allow written as 100 and 80 Answer space takes precedence
10(a)(ii)I. (80 – 75 =) 5 (seconds)	B1	Not from incorrect working Answer space takes precedence
10(a)(ii)II. Answer in the inclusive range 12 to 14 (seconds)	B2	Allow in this range only provided it not from incorrect working Answer space takes precedence B1 for sight of 92 – 60 (– 20) to 94 – 60 (– 20) or 32 (–20) to 34 (– 20)

10(b) 96 (seconds)	B3	Answer space takes precedence B2 for sight of or indication of 64 (squirrels), B1 any one of the following: • for sight of or indication of 16 (squirrels) • (use of 16 squirrels) answer of 52 (seconds) B0 for 64 seconds from incorrect working, 20% of 120 = 24, with time 64 seconds B0 for 96 seconds from incorrect working, 80% of 120 = 96, with time 96 seconds
10(c) (24 ÷ 21500) × 1000000 (squirrels per km^2) 1116(.27...) (squirrels per km^2) AND Conclusion indicated or unambiguously implied 'Oak'	M2 A1	Accept using estimation: (24 ÷ 20000) × 1000000 M1 for any one of the following, including if embedded: • 24 ÷ 21500 (= 0.001116... squirrels per m^2) • (estimate) 24 ÷ 20000 (= 0.0012 squirrels per m^2) • 1000000 ÷ 21500 (= 46.5....) • (estimate) 1000000 ÷ 20000 (= 50) Accept 1200 from estimating, i.e. (24 ÷ 20000) × 1000000 =1200 (squirrels per km^2) If no marks, award SC1 for appropriate sight of a calculation of 24 ÷ 'a number with only non-zero digits 215', provided not embedded in further working apart from multiplication or division by powers of 10
10(c) Alternative method *(If **oak**, number of squirrels likely in Maesgwyn Forest) 21 500 × 1200 ÷ 1000000* *25.8 (squirrels) AND 'Oak' indicated as conclusion*	*M2* *A1*	*Allow M2 for (If chestnut) 21 500 × 100 ÷ 1000000 (= 2.15)* *or (if pine) 21 500 × 45 ÷ 1000000 (= 0.9675)* *M1 for any one of the following, including if embedded:* • *(if oak) 21 500 × 1200 (= 25800000)* • *(If chestnut) 21 500 × 100 (= 2 150000)* • *(if pine) 21 500 × 45 (= 967 500)* • *21 500 ÷ 1000000 (= 0.0215)* • *20000 ÷ 1000000 (= 0.02)* *Allow from correct working either* *2.15 (squirrels for Chestnut so must be) Oak, or* *0.9675 or 1 (squirrels for Pine so must be) Oak* *If no marks, award SC1 for appropriate sight of **any 1** of the following calculations:* • *'a number with only non-zero digits 215' × 1200* • *'a number with only non-zero digits 215' × 45* *provided not embedded in further working apart from multiplication or division by powers of 10*