REVISE
.wales

F1.01 — Money basics — pounds, pence & best buys

Mark schemes for the F1.01 question pack

Spec 1.8.1, 1.8.2 — Unit 1

SOLUTIONS · 2025 SPECIFICATION

Mark schemes for the 38 questions in the corresponding revise.wales question pack (117 marks total). Sources: legacy WJEC GCSE papers, WJEC SAM, and custom-authored mark schemes. Pack layout © revise.wales.

1. (a) 50 004		B1	
1. (b) 80(p)		B2	B1 for 720(p) ÷ 9 or (£)0.8(0)(p) or £80
1. (c) 4 and 5		B2	B1 for at least two different pairs of numbers which add to 9 OR B1 for at least two different pairs of numbers which have a product of 20 OR B1 for one pair that adds to 9 **and** one pair that has a product of 20.

3.		**Answer lines take precedence**
2·73 (pints) ÷ 1·75 or 2·73 (pints) × 4/7 1·56 (litres)	M1 A1	Allow use of 568ml or 570ml ≈ 1 pint leading to an answer of 1·55 or 1·56.
1·615(0) (litres)	B1	
1·25 + 1·56 + 1·615	M1	(= 4·425) FT 1·25 + 'their 1·56' + 'their 1·615'. Award M1 for 1·25 + 2·73 + 1615.
÷ 3	m1	
1·475 (litres) or 1·47 (litres) or 1·48 (litres)	A1	Allow 1·5 (litres) from correct working. Note: An answer of (1618.98/3 =) 539·66 or 540 or 539·6 or 539·7 implies M1m1A1.

Unit 2: Foundation Tier		Mark	Comments
1.(a) 452 × 63 = 28 466		B1	
1.(b)	3838	B1	
1.(c) 22		B1	

<table>
<tr>
<td>3(a) Compare small with large using same <u>volume</u>, e.g.
• Volume of 4 small cartons
• Cost of 4 small cartons
• Cost of 500ml of large carton
OR
Compare medium with large using <u>volume and cost</u>, e.g.
• Cost for 2400ml medium cartons
• Cost of 1000ml large carton</td>
<td>B1</td>
<td>Accept for ‘their 4’ from 2000 ÷ 500
Ignore incorrect units given
<table><tr><td>4 small</td><td>vol</td><td>4 × 500</td><td>2000ml</td></tr><tr><td>4 small</td><td>cost</td><td>4 × (0.)40</td><td>£1.6(0) or 160p</td></tr><tr><td>500ml large</td><td>cost</td><td>2(.)50 ÷ 4</td><td>£0.625 or 62.5p</td></tr><tr><td>2400ml medium</td><td>cost</td><td>2 × 1(.)20</td><td>£2.40 or 240p</td></tr><tr><td>1000ml large</td><td>cost</td><td>2(.)50 ÷ 2</td><td>£1.25 or 125p</td></tr></table></td>
</tr>
<tr>
<td>Compare the small with the medium using <u>cost</u>, e.g.
• Volume for £1.20 in small cartons
• Cost of 3 small cartons
• Volume of 1/3 of a medium carton
• Cost of 400 ml medium carton</td>
<td>B1</td>
<td>Accept for ‘their 3’ from 1200 ÷ 400
Ignore incorrect units given
<table><tr><td>£1.20 in small</td><td>vol</td><td>3 × 500</td><td>1500 ml</td></tr><tr><td>3 small</td><td>cost</td><td>3 × (0.)40</td><td>£1.20 or 120p</td></tr><tr><td>1/3 medium</td><td>vol</td><td>1200 ÷ 3</td><td>400 ml</td></tr><tr><td>400 ml medium</td><td>cost</td><td>1(.)20 ÷ 3</td><td>£0.4(0) or 40p</td></tr></table></td>
</tr>
<tr>
<td>Conclusion ‘small’ based on accurate calculations from full comparison</td>
<td>B1</td>
<td>Only FT from B1, B1
Must have consistent correct units or allow no units given</td>
</tr>
<tr>
<td><u>3(a) Alternative method 1</u>
Method of comparing all 3 cartons, e.g.
ml per 10p or p per 100ml or £ per 6000 ml</td>
<td>M2</td>
<td>Ignore incorrect units given
M1 for attempt to compare at least 2 of the 3 cartons
<table><tr><td></td><td>Small</td><td>Medium</td><td>Large</td></tr><tr><td>ml for 10p</td><td>500 ÷ 4 = 125</td><td>1200 ÷ 12 = 100</td><td>2000 ÷ 25 = 80</td></tr><tr><td>p per 100 ml</td><td>40 ÷ 5 = 8</td><td>1(.)20 ÷ 12 = 10</td><td>2(.)50 ÷ 20 = 12.5 Allow 12 or 13</td></tr><tr><td>£ per 6000ml</td><td>12 × 0(.)40 = 4.80</td><td>5 × 1(.)20 = 6</td><td>3 × 2(.)50 = 7.50</td></tr></table></td>
</tr>
<tr>
<td>Conclusion ‘small’ based on accurate calculations from full comparison</td>
<td>A1</td>
<td>Only FT from M2
Must have consistent correct units or allow no units given
From division calculations, allow rounding and truncation provided it does not impact on being able to compare</td>
</tr>
<tr>
<td>3(b) 300 × 30 ÷ 12 or 300 × 2.5 or 30 × 25 or 2 × 300 + ¼ (2 × 300) or 600 + 150 or equivalent

750(ml)</td>
<td>M1

A1</td>
<td>May be seen in stages

CAO</td>
</tr>
</table>

4(a) 7	B1	
4(b) 9	B1	
4(c) No and valid reason given e.g. 'No because you add two onto each of the design numbers' 'No because it is the design + 2' 'No because that rule doesn't work for Design 2' 'No because Design 2 uses 4 pieces (not 6)' 'No, because for design 2, 2 × 3 = 6, design 3, 3×3 = 9 and both totals are not correct' 'No, because design 3 has 5 pieces of metal which shows it is not multiplied by 3' 'No because design 3 would be 9 and not 5' 'No because the rule is n + 2 not n × 3'	E1	Ignore any further spurious comments. Do not accept 'No, because the designs add one more piece of metal each time' 'No because you add on 1 each time' Do not accept values from incorrect number work e.g. 'No because design 3 would be 6 and not 5'
4(d) 180 – (55 + 90) or 90 - 55 35(°)	M1 A1	
4(e) (30 – 14) ÷ 2 (£)8	M1 A1	May be seen in stages Allow sight of embedded 8 for M1, e.g. • 2 × 8 + 14 = 30 • 2 × 8 = 16 + 14 = 30 Award M1 for sight of two correctly evaluated improving trials e.g. 2 × 6 + 14 = 26 AND 2 × 7 + 14 = 28 Answer line takes precedence – do not award A1 if answer line states £30 If answer line is blank, accept embedded answers provided that it is not contradicted *(e.g. if they say cost of materials is 30)*

5(a) (North orchard, number of pear trees is) $3 \times 35 \div (4 + 3)$ or 3×5 or equivalent	M1	
15 (pear trees) (West orchard number of pear trees is 2×15)	A1	
30 (pear trees)	B1	FT 'their derived 15'
(West orchard number of cherry trees is) $11 \times 30 \div 5$	M1	FT 'their derived number of pear trees' Allow M1 for a final answer of 88 (cherry trees from use of 40 apple trees as pear trees), but A0
66 (cherry trees)	A1	FT answer must be evaluated correctly and lead to a whole number
5(b) (Mass of apples to make juice) 5280		Method may be seen in either order
$\div 6$	M1	M0 for statement '1/6 of 5280' without calculation
$\div 2.2$	M1	
400 (kg)	A2	Ignore incorrect units given May be seen or implied in later working A1 for any one of the following: • (5280 ÷ 2.2 =) 2400 • (5280 ÷ 6 =) 880 • a correct evaluation of 'their 2400' ÷ 6 • a correct evaluation of 'their 880' ÷ 2.2
(Number of litres of juice produced) $400 \times 2 \div 5$ or $2 \div (5 \div 400)$ or $2 \times \frac{400}{5}$	M1	FT 'their derived 400(kg)' (not 5280) If 'their derived 400' is used as g (rather than kg) allow M1 for 'their derived 400' × 2 ÷ 5000 or 2 ÷ (5000 ÷ 'their derived 400'), but A0
160 (litres)	A1	
5(b) Alternative method *(Mass of apples used to make juice) 5280 ÷ 6*	*M1*	
880 (lbs)	*A1*	
(Mass of apples in 2 litres) 5 × 2.2	*M1*	
11 (lbs)	*A1*	
(Number of litres of juice produced) 2 × 880 ÷ 11	*M1*	*FT 'their derived 880' and 'their derived 11'*
160 (litres)	*A1*	
5(c)(i) Method 1 for 200 jars (Cost of 200 jars) 200 × (0.)23 OR (Sales of 200 jars of jam) 200 × 1(.)60	M1	
(Cost of 200 jars) 4600(p) or (£)46	A1	
(Sales of 200 jars of jam) 32000(p) or (£)320	A1	
(Cost 200 jars + jam) (£94 +£46=) (£)140 or 14000(p)	B1	FT £94 + 'their derived £46'
(Profit £320 - £140 =) 18000(p) or (£)180	B1	If units are given they must be correct FT 'their derived £320' – 'their derived £140'

5(c)(i) <u>Method 2 for 200 jars</u> *(Cost of jam for 200 jars) 200 × (1(.)60 – 0(.)23)* *(=) £) 274 or 27400(p)* *(Profit £274 - £94 =)18000(p) or (£)180*	*M2* *A2* *B1*	*M1 for 1(.)60 – 0(.)23 or (£)1.37 or 137(p)* *A1 for 200 × 1(.)37* If units are given they must be correct *FT 'their derived £274' – £94*
5(c)(i) <u>Method for 1 jar</u> *(Cost of ingredients for 1 jar of jam) 94(00) ÷ 200* *47(p) or (£)0.47* *(Cost of jam and jar) (23p + 47p =) 70(p) or (£)0.7(0)* *(Profit for 1 jar of jam £1.60 – 70p =) 90(p) or(£)0.9(0)* *(Profit for 200 jars of jam) 18000(p) or (£)180*	*M1* *A1* *B1* *B1* *B1*	 *FT 'their derived 47p' + 23p* *FT £1.60 - 'their derived 70p'* *May be seen or implied in later working* If units are given they must be correct *FT 'their derived 90p'*
5(c)(ii) 3 × 48 ÷ 8 or equivalent 18 (cm)	M1 A1	

6(a) Whale indicated or implied on bearing 010° from Aberporth and 280° from Aberystwyth.	B2	Accept indication from one bearing line drawn with the second bearing shown on this line, including one line terminating at the correct intersection point B1 for either of the bearings correctly shown or unambiguously indicated, e.g. by an unambiguous mark on the correct bearing
Region in the sea inside a circle, centred at the whale, of correct (4cm) radius ± 2mm	B2	FT 'their position of the whale' For B2 the region must be entirely within the sea or on FT indicated as a region within the sea Allow intention of circle provided it lies completely within the tolerance given by the overlay B1 for (intention of a) circle, radius out of tolerance but within ± 4 mm, centred at the whale including any region on the land
6(b) $20 \times 12 \times 2.5 \div 100$	M2	M1 for any 3 of these 4 terms correct in a calculation which may be shown in stages
6 (m)	A1	CAO Answer given within the statement takes precedence Sight of 600 is awarded M1 and also SC1 provided not from incorrect working

6(c)(i) $\frac{13}{20}$ (× 100) or $\frac{12.5}{20}$ (× 100) or $\frac{12.8}{19}$ (× 100) or $\frac{12}{20}$ (× 100) or $\frac{12}{19}$ (× 100) or $\frac{12.8}{20}$ (× 100) or $\frac{13}{19}$ (× 100) or equivalent OR A trial and improvement method, considering percentages or decimals of 19 or 20 with a correct calculation shown between (60% of 19) 0.6 × 19 (= 11.4) and (70% of 20) 0.7 × 20 (= 14) inclusive	B1	Allow: • fraction written as division, e.g. 13 ÷ 20 • inclusion of consistent change of place value • a similar suitable fraction, e.g. 12/18
An answer in the inclusive range 60(%) to 70(%)	B1	Only award if B1 previously awarded, however allow B2 for an unsupported answer in this range. If no marks, award SC1 for any of the following answers: • 50(%) from $\frac{10}{20}$ (× 100) or equivalent • 52(%) to 53(%) from $\frac{10}{19}$ (× 100) or equivalent
6(c)(ii) (19 – 0.1 × 19) × 1000 000 000 or (19 – 0.1 × 19) × (1) × 10^9 or 0.9 × 19 × 1000 000 000 or 1.9 × 10^{10} × 9 × 10^{-1} or equivalent	M2	M1 for any one of the following: • for sight of digits 171 irrespective of place value • 19 – 0.1 × 19 • 19 billion – 0.1 × 19 billion • (19 – 0.1 × 19) × 1000 million • 0.9 × 19 • 1.9 × 10^{10} (19 billion in standard form) • 1.9 × 10^9 only if clearly calculated from 10% of 19 billion
1.71 × 10^{10}	A2	A1 for any of the following: • 17 100 000 000 • 1.71 × 10^4 million • equivalent correct value not given correctly in standard form, e.g. 17.1 × 10^9 • an answer of 1.7 × 10^{10} OR A1 for FT from M1 or M2 • 'their number' given correctly in standard form provided it is > 1.71 × 10^6 (including for the number in the last bullet point listed for M1) A0 for 17.1 billion or 17 100 million (M1 A0) Treat use of an estimate of 19 as a MR-1 from an accuracy mark, e.g. use of 20 gives an answer of 1.8 × 10^{10}, award (M2 A2 MR-1) 3 marks

7(a) (Area of the small picture is) 10×5 OR (Area of the large picture is) 40×15	M1	
(Area of the small picture is) 50 (cm^2) (Area of the large picture is) 600 (cm^2)	A1 A1	May be implied in further working May be implied in further working
(Cost to print large picture is) $\frac{600}{50} \times 2(.00)$ OR For a full proportion **method** calculated correctly or or with working shown, e.g. $50cm^2$ is (£)2, $100cm^2$ is 2×2 (=£4), $150cm^2$ is $2 + 2 \times 2$ and $600cm^2$ is $4 \times (2 + 2 \times 2)$	M2	May be seen in stages FT 'their 10×5' and FT 'their 40×15' M1 for any one of the following: • (Cost to print $1cm^2$) 2(.00) ÷ 50 or 4(p) or (£)0.04 • 600 ÷ 50 or (600 ÷ 50 =) 12 or $12 \times 50 = 600$ • 'their cost to print per $1cm^2$' × 'their 40×15' • Proportion method that would lead to a correct response, but includes one error, e.g. $50cm^2$ is (£)2, $100cm^2$ is (£)4, $150cm^2$ is *without working* '*(£)5*' with $600cm^2$ is (4×5 = £) 20 • FT for 'their 50' and 'their 600' (including if perimeters or semi-perimeters)
(£)24 or 2400(p)	A1	Only FT from previous M2 If units are given they must be correct
7(a) Alternative method 1 *(To find the number of small pictures to cover area of the large picture) 40 ÷ 10 AND 15 ÷ 5*	*M1*	*Allow 40 ÷ 5 AND 15 ÷ 10*
4 (up) and 3 (across)	*A2*	*May be shown on a diagram* *Allow 8 and 1.5 (from 40 ÷ 5 = 8 and 15 ÷ 10= 1.5)* *A1 for any one of the 4 possible divisions accurately evaluated*
(Cost to print the large picture) *4 × 3 × (£) 2 or equivalent*	*M2*	*FT 'their 4 across and 3 up' provided 2 different values ≠ 1* *Allow 8 × 1.5 × (£)2* *M1 for appropriate sight of 4 × 3 or 8 × 1.5 including if embedded in other working*
(Cost to print large picture) *(£)24 or 2400(p)*	*A1*	*FT from M2 only* *If units are given they must be correct*
7(b) $(10 + 5 + 10 + 5) \times (0.)40$ or $30 \times (0.)40$ or $10 \times (0.)40 + 5 \times (0.)40 + 10 \times (0.)40 + 5 \times (0.)40$ or $4 + 2 + 4 + 2$ or $400 + 200 + 400 + 200$	M2	M1 for sight of any one of the following: • $10 + 5 + 10 + 5$ (= 30 cm) • $(10 + 5) \times (0.)40$ (= £6 or 600p) • $10 \times (0.)40 + 5 \times (0.)40$ (=£6 or 600p) • (2, 4,) 2 and 4 (check diagram) • (200, 400,) 200 and 400 (check diagram) • ('their height' + 'their width') × 2 x (0.)40
(£)12 or 1200(p)	A1	CAO. If units are given they must be correct If no marks, award SC1 for an answer of (£)44 or 4400(p) (working with the larger picture)

7(a) $4500 \times (1 - 0.2(0)) \times (1 - 0.14)^9$ or $4500 \times 0.8(0) \times 0.86^9$ or equivalent	M2	For M2, do not ignore any additional years considered, unless 10 years selected or implied in later working M1 for equivalent of one of the following (which may be embedded in other working): • $4500 \times (1 - 0.2(0))$ (= 3600) • $4500 \times 0.8(0)$ (= 3600) • $4500 \times (1 - 0.14)^9$ (= 1157.97...) • 4500×0.86^9 (= 1157.97...)
An answer in the range (£)926.35 to (£)926.40	A1	An answer for 10 years (not beyond) must be selected Allow an answer of (£)926 provided not from rounding an amount outside the range given Award M1, SC1 for an answer $(4500 \times 0.8 \times 0.86^{10} =)$ (£)796.68(5....) or (£)796.69 or (£)796.70 or (£)797
7(b) $100 \times 750 \div 125$ or $100 \times \frac{750}{125}$ or equivalent	M1	
(£) 600	A1	Answer space takes precedence
7(c)		Accept equivalents using the sine rule throughout '½ width' may be referred to by any unknown
Sight of appropriate 80 (cm) (height of triangle)	B1	Check if indicated on the diagram
(½ width =) $\frac{80}{\tan 33°}$ or (½ width =) $80 \times \tan(90° - 33°)$	M2	(= 123.189... cm or 123.2 cm) FT 'their 80' provided ≤ 120 and ≠ 90 M1 for sight of $\tan 33° = \frac{80}{\text{½ width}}$ or $\tan(90° - 33°) = \frac{\text{½width}}{80}$
× 2	m1	FT provided at least M1 previously awarded, i.e. for intention to double 'their ½ width'
(Width of garage is) 246(cm) to 246.4(cm)	A1	CAO. ISW
7(d) (Maximum space =) 555 – 395 – 70 or 550 – 400 + 2 × 5 – 70 or equivalent	M2	Check the diagram M1 for any of the following: • **use** of 550 < 'their 555' ≤ 560 AND 390 ≤ 'their 395' < 400 • for sight of 555 and 395 • for sight of 550 – 400 + 2 × 5
90 (cm)	A1	CAO Award M1 and SC1 for an answer of (555 – 395 =) 160 (cm)

<table>
<tr>
<td>8. Compare small with large using same <u>volume</u>, e.g.
• Volume of 4 small cartons
• Cost of 4 small cartons
• Cost of 500ml of large carton
OR
Compare medium with large using <u>volume and cost</u>, e.g.
• Cost for 2400ml medium cartons
• Cost of 1000ml large carton</td>
<td>B1</td>
<td>Accept for ‘their 4’ from 2000 ÷ 500
Ignore incorrect units given
<table><tr><td>4 small</td><td>vol</td><td>4 × 500</td><td>2000ml</td></tr><tr><td>4 small</td><td>cost</td><td>4 × (0.)40</td><td>£1.6(0) or 160p</td></tr><tr><td>500ml large</td><td>cost</td><td>2(.)50 ÷ 4</td><td>£0.625 or 62.5p</td></tr><tr><td>2400ml medium</td><td>cost</td><td>2 × 1(.)20</td><td>£2.40 or 240p</td></tr><tr><td>1000ml large</td><td>cost</td><td>2(.)50 ÷ 2</td><td>£1.25 or 125p</td></tr></table></td>
</tr>
<tr>
<td>Compare the small with the medium using <u>cost</u>, e.g.
• Volume for £1.20 in small cartons
• Cost of 3 small cartons
• Volume of 1/3 of a medium carton
• Cost of 400 ml medium carton</td>
<td>B1</td>
<td>Accept for ‘their 3’ from 1200 ÷ 400
Ignore incorrect units given
<table><tr><td>£1.20 in small</td><td>vol</td><td>3 × 500</td><td>1500 ml</td></tr><tr><td>3 small</td><td>cost</td><td>3 × (0.)40</td><td>£1.20 or 120p</td></tr><tr><td>1/3 medium</td><td>vol</td><td>1200 ÷ 3</td><td>400 ml</td></tr><tr><td>400 ml medium</td><td>cost</td><td>1(.)20 ÷ 3</td><td>£0.4(0) or 40p</td></tr></table></td>
</tr>
<tr>
<td>Conclusion ‘small’ based on accurate calculations from full comparison</td>
<td>B1</td>
<td>Only FT from B1, B1
Must have consistent correct units or allow no units given</td>
</tr>
<tr>
<td><u>8. Alternative method 1</u>
Method of comparing all 3 cartons, e.g.
ml per 10p or p per 100ml or £ per 6000 ml</td>
<td>M2</td>
<td>Ignore incorrect units given
M1 for attempt to compare at least 2 of the 3 cartons
<table><tr><td></td><td>Small</td><td>Medium</td><td>Large</td></tr><tr><td>ml for 10p</td><td>500 ÷ 4 = 125</td><td>1200 ÷ 12 = 100</td><td>2000 ÷ 25 = 80</td></tr><tr><td>p per 100 ml</td><td>40 ÷ 5 = 8</td><td>1(.)20 ÷ 12 = 10</td><td>2(.)50 ÷ 20 = 12.5
Allow 12 or 13</td></tr><tr><td>£ per 6000ml</td><td>12 × 0(.)40 = 4.80</td><td>5 × 1(.)20 = 6</td><td>3 × 2(.)50 = 7.50</td></tr></table></td>
</tr>
<tr>
<td>Conclusion ‘small’ based on accurate calculations from full comparison</td>
<td>A1</td>
<td>Only FT from M2
Must have consistent correct units or allow no units given
From division calculations, allow rounding and truncation provided it does not impact on being able to compare</td>
</tr>
</table>

1(a) $\frac{3}{10}$	B2	Mark final answer B1 for $\frac{15}{50}$ or $\frac{30}{100}$
1(b) $20 \times 25 + 28 \times 15 + 17 \times 10$ (= 500 + 420 + 170)	M2	M1 for either • sight of the **sum** of any 2 unique appropriate products (not multiples of these products) or • for sight of 20×25, 28×15 and 17×10
(£) 1090	A2	CAO. Answer space takes precedence FT from M2 or M1 to award A1 for either • any 2 of 500, 420 and 170 in a correctly evaluated sum of 3 products or • sight of 500, 420 and 170 **<u>If no marks</u>**, • award SC1 for sight of (Saturday and Sunday interchanged) $17 \times 25 + 28 \times 15 + 20 \times 10$ **AND** EITHER SC2 for an answer of (£)1045 OR SC1 for one of the following: • any 2 of 425, 420 and 200 in a correctly evaluated sum of 3 products • sight of 425, 420 and 200 • award SC1 for sight of (table followed in order used in Venn) $20 \times 25 + 17 \times 15 + 28 \times 10$ **AND** EITHER SC2 for an answer of (£)1035 OR SC1 for one of the following: • any 2 of 500, 255 and 280 in a correctly evaluated sum of 3 products • sight of 500, 255 and 280

4(a) ($\frac{1}{5}$ is \$40, total amount of gift is) 40×5 or $40 \div \frac{1}{5}$		M1	Ignore \$ written as £ or €, etc
	($)200	A1	ISW
(Amount gifted to animal charity is ¼ × 200)	($)50	B1	FT ¼ × 'their 200' correctly evaluated, provided • 'their 200' ≠ 40 • 'their 200' ≠ 200 – 40 (= 160) Allow FT 'their 200' = 8 *(see note below)*
(Gift to medical research is) ($) 200 – 40 – 50		M1	FT 'their derived 200' – 40 – 'their 50', provided > 0
	($) 110	A1	FT provided both M marks previously awarded *If no marks, award SC1 for* *(40 – 1/5 × 40 – ¼ × 40 = 40 – 8 – 10 =) ($)22*

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

5(a) 209° ± 2°	B1	Answer space takes precedence
5(b)(i) Answer in the range 21 (km) to 25 (km)	B1	Answer space takes precedence
5(b)(ii) Correct interpretation of the map scale, e.g. • 1 cm represents 25 000 cm or 250 m • 2 cm represents 50 000 cm or 500 m or 0.5 km • 4 cm represents 100 000 cm or 1 000 m or 1 km OR Correct conversion 12 km to cm, 25 000 cm to km or equivalent, e.g. • (12 km =) 1 200 000 (cm) • (25 000 cm =) 0.25 (km) • sight of 1200 and 25 • sight of 12 and 0.25	B1	
12 ÷ 0.25 or 12 × 4 or 1 200 000 ÷ 25 000 or 1 200 ÷ 25 or equivalent	M1	Ignore place value error, e.g. 12 ÷ 'their number with digits 25', 12 × 'their number with digit 4'
48 (cm)	A1	CAO
5(b)(ii) Alternative method *(Original map scale is 3 cm : 12 km =)* *3 : 1 200 000 or 1 : 400 000 or equivalent*	*B1*	
$\frac{400\,000}{25\,000}$ × 3 or 16 × 3 or equivalent	*M1*	*Ignore errors in place value*
48 (cm)	*A1*	*CAO*

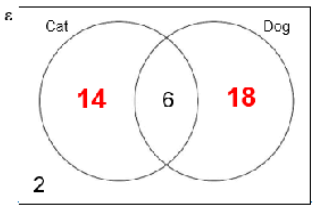
7(a) 8 × 1172 ÷ 5 or 1172 × 1.6	M1	Do not allow 1172 × 1.5
1875.2 (km)	A1	Accept 1875 (km) from correct working Answer space takes precedence
7(b) 0.366 × 1000 ÷ 60	M1	
6.1 (m/s)	A1	Accept 6 (m/s) from correct working Answer space takes precedence

7(c) (Difference 60 million – 41 000 000 =) 19 000 000 or 19 million	B1	May be implied in further working Allow 19 m(il)
(Underspend) $\frac{19\,000\,000}{60\,000\,000}$ (× 100) or equivalent	M1	FT 'their 60 million – 41 000 000' including if a place value error made
31.67(%)	A1	CAO (must be 2 d.p.) Answer space takes precedence
7(c) Alternative method *(Underspend)* *(100 –)* $\frac{41\,000\,000}{60\,000\,000}$ *(× 100) or equivalent*	*M1*	*Allow place value error*
31.67(%)	*A2*	*CAO (must be 2 d.p.)* *Answer space takes precedence* *A1 for 31.6(6…%), 31.7(%), 32(%) or 68.33(%)*
7(d) 4×10^6	B1	
7(e) (Change to \$) 350 × 1.25	M1	*Do not penalise slips in giving incorrect use of £ for \$*
(\$)437.5(0)	A1	
(Only \$10 and \$50 notes available so he can buy) (\$)430	A1	FT 'their (\$)437.5(0)' (provided not a multiple of 10) rounded down to nearest multiple of 10 Accept stated or implied as (\$)7.50 can't be converted (\$)430 implies previous M1 A1, provided not from incorrect working
(Fewest number of notes making up \$430) **8** \$50 (notes) and **3** \$10 (notes)	A1	FT 'their \$430' provided it is a multiple of 10 (and provided M1 previously awarded) Must be fewest number of notes, that may be listed Sight of correct number of notes with no incorrect working implies previous A1, unless contradicted
(Cost in £ to buy \$430 is) 430 ÷ 1.25 or 350 – 7.5(0) ÷ 1.25 (= 350 – 6)	M1	FT 'their whole number multiple of \$10' ÷ 1.25 Ignore attempt at any further calculation if 430 ÷ 1.25 seen
(£)344	A1	Must be <(£)350 **and** depends on M1 M1 previously awarded Mark final answer If final M0 A0, then award SC1 for (£) 6 (left) or similar on FT, provided not from incorrect or inappropriate working
7(e) Alternative method *£40 = \$50 and £8 = \$10* *8 \$50 notes, 3 \$10 notes*	*M1* *A3*	*A2 for 8 \$50 notes* ***and** sight of 350 – 8 × 40 or equivalent* *OR* *A1 for 8 \$50 notes*
(Cost to buy £350 is) 8 × 40 + 3 × 8 *(£)344*	*M1* *A1*	

9(a)(i) Entries 146 and 160 in the table and the cumulative frequency diagram completed correctly (correct plots (11, 146) and (13, 160) and all plots joined)	B2	B1 for any one of the following: • 146 and 160 in the table, correct plots but **not** joined • 146 and 160 in the table, with one correct plot and one incorrect plot in completing the **cumulative** frequency diagram with plots joined • one error in the table, including FT 'their 146' + 14 and these **cumulative** entries used correctly to complete the **cumulative** frequency diagram with plots joined • correct cumulative frequency diagram with plots joined, with incorrect, incomplete or not attempted entries in the table
9(a)(ii) 8.2 to 8.4 (minutes)	B1	Answer space takes precedence Allow 8 minutes 12 seconds to 8 minutes 24 seconds FT reading from the graph for 'their median', from ½ × 'their 160', provided 'their 160' ≥ 110, with a tolerance of ½ small square from 'their **cumulative** frequency graph', provided it is possible to read 'their median' from the vertical axis on the graph paper provided
9(a)(iii) 7.2 minutes	B1	Answer space in the statement takes precedence, if blank award for indication of '7.2' (circled) in the list Allow '7' in the answer space provided 7.2 indicated in the list Do not accept '8' in the answer space if 7.2 indicated in the list
9(a)(iv) $\frac{20}{160}$ (× 100) or $\frac{1}{2}$ × 25 (%) or equivalent 12.5 (%) or 12½ (%)	M1 A1	FT for (100 ×) 20/'their 160', provided 'their 160'> 106 On FT allow rounding or truncation to 1 decimal place
9(b) (Costs are 180 + 220) (£) 400 **AND** (Profit is 700 – 180 – 220) (£) 300 **OR** (Receipts / Costs =) $\frac{700}{400}$ (× 100) (Percentage profit is) $\frac{300}{400}$ (× 100) or $\frac{700}{400}$ (× 100) – 1 (× 100) 75 (%)	B1 M1 A1	May be embedded, e.g. 700 – 400 = 300 (= 1.75 or 175%) FT 'their 400' and 700 – 'their 400' provided their costs or profit are ≠ 180, ≠ 220 and ≠ 700 CAO Allow if all costs and the total are consistently multiplied by 3.
9(c) 8(.)40 ÷ 1(.)20 or 8(.)40 – 8(.)40 ÷ 6 or equivalent (£) 7 or 700 (p)	M1 A1	Accept a **complete** and **convincing** method of trial and improvement If units are given they must be correct Sight of 7 + 1.40 = 8.40 is awarded M1 A0 unless (£)7 is selected

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

10.		
		Numbers shown in the boxes take precedence. If answer boxes are left blank allow unambiguous indication of their three answers.
10%	B1	
£92(.00)	B1	FT 9.2 ÷ 'their 0·1' (i.e. 'their 10%').
36 × 0·135 or equivalent	M1	Allow 36 × $\frac{13{\cdot}5}{100}$ or equivalent for M1.
£4.86	A1	

13. [n(just dog) =] 18 [n(just cat) =] 14  	 B2 B1	Diagram takes precedence. Entries must be whole numbers. B1 for sight of ($\frac{3}{5} \times 40 =$) 24 from correct working. FT 32 – 'their 18', provided all sections not blank or 0.

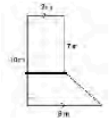
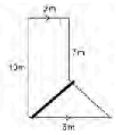
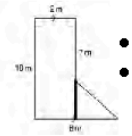
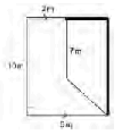
19.		
		Numbers shown in the boxes take precedence. If answer boxes are left blank allow unambiguous indication of their three answers.
10%	B1	
£92(.00)	B1	FT 9.2 ÷ 'their 0·1' (i.e. 'their 10%').
36 × 0·135 or equivalent	M1	Allow 36 × $\frac{13{\cdot}5}{100}$ or equivalent for M1.
£4.86	A1	

Unit 2: Foundation Tier	Mark	Comments
1.(a) Suitable explanation e.g. 'Morgan has added £99 (and not 99p)' 'the units are different' 'Morgan has added pence and pounds' 'Morgan typed in 99 not 0.99' 'Didn't put 0. in front of 99'	E1	Allow: 'Morgan has forgotten the decimal point for the 99 pence' 'Didn't put the dot in front of 99' 'Adds them all up instead of putting 0 in front of 99p' 'he didn't put decimal place he added as whole numbers' *'numbers added together with decimal point after the number (99)'* 'Morgan added £98.01 onto the actual cost' '2.70 + 0.99 + 1.30 + 1.95 + 7.49 (=14.43)' 'he forgot that it was 99p' 'didn't use 99p for bananas' 'Morgan has forgotten to put one of the decimal places in' Do not accept: 'he added them up incorrectly' 'it should be (£)14.43' 'he put 99 when it should be 9.9' '2.70 + 99p + 1.30 + 1.95 + 7.49 = £14.43' 'he has not made the 99p £1' 'he didn't use his calculator' 'he didn't put the dot in' 'he put the decimal in which made it a higher number it = £14.43' (not clear enough)
1. (b) 20 – (2.70 + 0.99 + 1.30 + 1.95 + 7.49) or equivalent (£)5.57	M1 A1	(£)20 – (£)14.43 Allow 14.43 - 20 Accept 2.70 + 99 + 1.30 + 1.95 + 7.49 seen if it leads to the correct answer. FT 'their 14.43' if clearly stated in (a) and is <20 for M1 only. CAO If no marks awarded, award SC1 for sight of (£)14.43. May be seen on shopping list or in part (a).

Unit 1: Foundation Tier	Mark	Comments
4(a) Method to compare the same number of toothbrushes, e.g. for 1, 5, 6, 15, 30 or 60 toothbrushes • (1) 1(.)44 ÷ 3 AND 2(.)25 ÷ 5 • (3) *(1(.)44 AND)* 3 × 2(.)25 ÷ 5 • (5) 2 × 1(.)44 – 1(.)44 ÷ 3 *(AND 2(.)25))* • (5) 5 × 1(.)44 ÷ 3 *(AND 2(.)25))* • (6) 2 × 1(.)44 AND 2(.)25 ÷ 5 + 2(.)25 • (15) 5 × 1(.)44 AND 3 × 2(.)25 • (30) 10 × 1(.)44 AND 6 × 2(.)25 • (60) 20 × 1(.)44 AND 12 × 2(.)25	M1	In £s: | | 1 | 3 | 5 | 6 | 15 | 30 | 60 | | 3pk | 0.48 | *(1.44)* | 2.40 | 2.88 | 7.20 | 14.40 | 28.80 | | 5pk | 0.45 | 1.35 | *(2.25)* | 2.70 | 6.75 | 13.50 | 27.00 |
An accurate calculation for a 3 pack **OR** a 5 pack, e.g. 48(p) or 45(p), (£)7.20 or (£)6.75	A1	
Cost of same number of toothbrushes for 3 pack **AND** 5 pack **WITH** conclusion pack of 5 is better value for money	A1	If units are given, they must be correct Ignore any subsequent working, unless it adversely impacts on the conclusion
4(b) (100 ml for) 93 × 4 ÷ 3 or 93 ÷ 3 + 93 or 93 × 20 ÷ 15 or 93 × 100 ÷ 75 or equivalent	M2	M1 for any one of the following: • (25 ml for) 93 ÷ 3 (= 31p) • (5 ml for) 93 ÷ 15 (= 6.2p) • (1 ml for) 93 ÷ 75 (= 1.24p)
(£)1.24 or 124(p)	A1	If units are given, they must be correct

Unit 2: Intermediate Tier	Mark	Comments
4.		*Penalise incorrect units -1 only on first occurrence, by withholding A or B mark, not M marks*
(Number of kWh =) 138 × 39·5 × 1.02264 ÷ 3.6 (Cost of gas = Number of kWh) × 0(.)12	M1 m1	(= 1548.4474 kWh)
(£)185.76 to (£)185.82 or 18576(p) to 18582(p)	A1	(1548.4474 × 0.12 = £185.813688)
(Standing charge 30 × (0.)32 =) (£)9.6(0) or 960(p)	B1	CAO
(Total of gas and standing charge) *(£)195.36 to (£)195.42 or 19536(p) to 19542(p)	B1	FT 'their derived cost of gas' + 'their 30 × (0.)32' correctly evaluated, provided 'their derived cost of gas' ≠ 'their 138 × 39·5 × 1.02264 ÷ 3.6' or 1548.4474 kWh May be implied in later working
(Total including VAT =) 1.05 × 195(.)36 to 1.05 × 195(.)42	M1	FT 'their derived total cost of gas **+** 'their standing charge'
*(£)205.12 to (£)205.19(1) or 20512(p) to 20519(.1p)	A1	ISW further rounding, e.g. (£)205, (£)205.20 If final B0 B0 M0 A0, award SC1 for correctly evaluated final answer of 1.05 × 'derived cost of gas' having omitted the standing charge, provided 'their derived cost of gas' ≠ 'their 138 × 39·5 × 1.02264 ÷ 3.6' or 1548.4474 kWh **Allow answers in these ranges that may include unseen rounding or truncation from a previously written value*
4. Alternative method: Gas per day		*Penalise incorrect units -1 only on first occurrence, by withholding A or B mark, not M marks*
(Number of kWh =) 138 × 39·5 × 1.02264 ÷ 3.6 *(Number of kWh per day) ÷ 30* *(Cost of gas per day) × 0(.)12*	*M1* *m1* *m1*	*(= 1548.4474 kWh)* *(= 51.6149133…kWh)*
(Cost of gas per day =) (£)6.19(…) or 619(…p)	*A1*	*CAO*
(Total of gas and standing charge) *6.51(…) or 651.(…p)*	*B1*	*FT 'their derived cost of gas per day' + (0.)32 correctly evaluated* *May be implied in later working*
(Total including VAT =) *1.05 × 6.51(…) × 30*	*M1*	*(= 6.83(94…) × 30 or 6.84 × 30)* *FT 'their derived cost of gas per day **+** (0.)32, provided 'their derived cost of gas' ≠ 'their 138 × 39·5 × 1.02264 ÷ 3.6' or 1548.4474 kWh*
**(£)205.12 to (£)205.19(1)* *or 20512(p) to 20519(.1p)*	*A1*	*ISW further rounding, e.g. (£)205, (£)205.20* *If final B0 M0 A0, award SC1 for correctly evaluated final answer of 1.05 × 'derived cost of gas per day' × 30 having omitted the standing charge,* provided 'their cost of gas' ≠ 'their 138 × 39·5 × 1.02264 ÷ 3.6' or 1548.4474 kWh **Allow answers in these ranges that may include unseen rounding or truncation from a previously written value*

Unit 1: Intermediate Tier	Mark	Comments
5(a) 50 × 3 × 1.8(0) or 50 × 3 × 180 (£) 270 or 27000(p)	M2 A2	M1 for any of the following: • 50 × 3 • 50 × 1.8(0) • 50 × 180 • 3 × 1.8(0) • 3 × 180 For A2, if units are given, they must be correct, otherwise A1 for 270p or £27000 Ignoring units, A1 for any of the following: • (50 × 3 =) 150 • (50 × 1.8(0) =) 90 • (50 × 180 =) 9000 • (3 × 1.8(0) =) 5.4(0) • (3 × 180 =) 540
5(b)(i) (Mean of 8 temperatures is -56 ÷ 8 =) -7 (°C)	B3	Must not be from incorrect working, other than allowing from 56 ÷ 8 B2 for any one of the following: • -56 ÷ 8 • 56 ÷ 8 = 7 B1 for any one of the following: • (sum of temperatures) -56 • (sum of temperatures) 56 • sight of 'their sum of temperatures' ÷ 8, provided the summation is not from a sum involving all positive integers or all negative integers, with or without a negative sign inserted. If '÷ 8' is not seen, it may be implied from 'their sum' and 'their mean' (rounded or truncated)
5(b)(ii) (-56 + -16) ÷ 9 or -72 ÷ 9 -8 (°C)	M1 A1	FT 'their -56' from (b)(i) On FT allow a rounded or truncated answer Allow a correctly rounded or truncated answer, to 1d.p. for '('their -56' + -16) ÷ 9' to imply M1 A1
5(c)(i) 20 × (8.6 (± 0.2)) 172 (± 4 m)	M1 A1	Do not award from sight of an incorrect evaluation of 'their 8.6' × 20
5(c)(ii) 232° ± 2°	B1	

Unit 1: Intermediate Tier	Mark	Comments
6(a)(i) (£) 70	B2	B1 for any one of the following: • use of (£)2010 • use of (£)1940
6(a)(ii) Answer in the inclusive range (£)1700 to (£)1780	B1	Allow answers given as a range provided 'their range' is inclusively within the required range
6(b) (Total area of the driveway)	M2	
 • ½ × (10 – 7) × (2 + 6) + 2 × 7 • ½ × 3 × 8 + 2 × 7 (= 12 + 14)		M1 for one of the following appropriate areas: • ½ × (10 – 7) × (2 + 6) (= 12m² area of trapezium)
 • ½ × 2 × (7 + 10) + ½ × 6 × (10 – 7) • ½ × 2 × 17 + ½ × 6 × 3 (= 17 + 9)		• ½ × 2 × (7 + 10) (= 17m² area of trapezium) • ½ × 6 × (10 – 7) (= 9m² area of a triangle)
 • ½ × (10 – 7) × (6 – 2) + 2 × 7 + 2 × 3 • ½ × 3 × 4 + 2 × 10 (= 6 + 20)		• ½ × (10 – 7) × (6 - 2) (= 6m² area of the triangle)
 • 6 × 10 – ½ × (6 – 2) × (7 + 10) • 6 × 10 – ½ × 4 × 17 (= 60 – 34)		• ½ × (6 – 2) × (7 + 10) (= 34m² area 'extra' trapezium)
26 (m²)	A1	CAO
Cost in the inclusive range (£)1780 to (£)1860	B1	FT '20 ≤ their derived composite **area** ≤ 30' for a suitable cost from the scatter diagram, within a range (shown below); must be for a composite area Do not FT from the perimeter or with the missing side, 25(m) Allow an answer in a range, provided 'their range of answers' is inclusively within the stated range On FT cost in the inclusive range:

Area (m²)	Least estimated cost (£)	Greatest estimated cost (£)
20	1410	1460
21	1460	1510
22	1520	1570
23	1590	1650
24	1650	1710
25	1700	1780
26	**1780**	**1860**
27	1850	1930
28	1920	2010
29	1970	2060
30	2030	2130

Unit 1: Intermediate Tier	Mark	Comments
6(c) (Repair of 23m^2 driveway cost £) 0.4 × 1590 to 0.4 × 1650 'No' unambiguously stated or implied **AND** a <u>correctly evaluated</u> 40% cost that will be in the range (£)636 to (£)660	B1 B1	 Do not award if 'No' is based on further working, such as 60% evaluated rather than 40%
6(c) <u>Alternative method</u> e.g. • *40% is (£)575 so 100% is 2.5 × 575 (= £1437.50)* • *40% is (£)600 so 100% is 2.5 × 600 (= £ 1500)* *'No' unambiguously stated or implied* ***AND** a correctly evaluated 100%* ***AND** shows less than needed, e.g. a reading from the diagram £1590 to £1650 (22.8m^2 for £1600)*	*B1* *B1*	

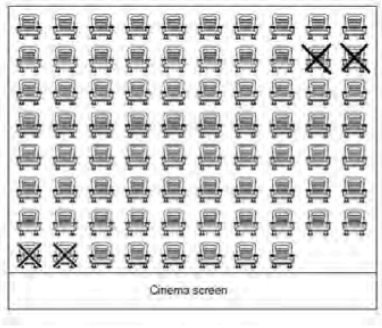
6. (Amount needed to save after next week) (£)510 – 165 or (£) 510 – (95 + 70) or (£) 510 – 95 – 70 (=£345)	M2	May be seen in stages Allow missing brackets provided not contradicted in further working M1 for sight of any one of • 510 – 95 (= £415) • 510 – 70 (= £440)
(Amount to save per week £) ÷ 12	m1	Depends on at least M1 previously awarded
(£) 28.75	A1	CAO. ISW FT provided at least 2 marks previously awarded • FT from M1 m1 for A1: ○ 415 ÷ 12 = (£)34.58(333…) or (£)34.59 ○ 440 ÷ 12 = (£)36.66(666..) or (£)36.67 • FT from M2 m0 for A1: ○ 345 ÷ 13 = (£)26.53(8….) or (£)26.54 ○ 345 ÷ 11 = (£)31.36(36…) or (£)31.37 If no marks, award any one of the following: SC2 (£)28.75 < answer ≤ (£)29, from supporting working, e.g. 12 × 29 + 95 + 70 = (£)513 SC1 (£)28.75 < unsupported answer ≤ (£)29 SC1 answer (£)13.75 from 165 ÷ 12 SC1 answer (£)42.50 from 510 ÷ 12

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	

8(a) (£) 70	B2	B1 for any one of the following: • use of (£)2010 • use of (£)1940
8(b) Answer in the inclusive range (£)1700 to (£)1780	B1	Allow answers given as a range provided 'their range' is inclusively within the required range

20.(a) (Berwyn = £) $0{\cdot}6x$ or equivalent	B1	CAO. Must be in terms of x e.g. award B0 for (£)0·6.
20.(b) Sight of (Carys = £)$0{\cdot}3x$ AND (Delyth = £)$0{\cdot}7x$ or equivalent (£)$0{\cdot}3x + $ (£)$0{\cdot}4x$ or equivalent (£)$0{\cdot}7x$ or Delyth or equivalent	B1 B1 B1	Must be seen and in terms of x e.g. award B0 for (£)0·3 and (£)0·7. Final answer of (£)$0{\cdot}7x$ or Delyth must be clearly identified, convincing and from correct working. If no marks awarded or if only the first B1 awarded, then award an additional SC1 for one of the following: • (£)0·3 + (£)0·4 = (£)0·7 (or Delyth) • (£)30 + (£)40 = (£)70 (or Delyth) or equivalent • Carys + Aled = Delyth. Carys + Aled = (£)$0{\cdot}7x$ is awarded full marks provided the first B1 is awarded. If first B1 not awarded, award SC1 for sight of Carys + Aled = (£)$0{\cdot}7x$.

2(a) (Amount of discount for 1 ticket =) (£)0.45 or 45(p) OR (Amount of discount for 2 tickets =) (£)0.9(0) or 90(p) (Cost of tickets =) 2 × (£)4.50 – 2 × (£)0.45 + (£)1.40 (9 – 0.90 + 1.40) Or 2 × (£)4.50 – 2 × 0.1 × (£)4.50 + (£)1.40 Or equivalent = (£)9.50	 B1 M2 A1	If units are given, they must be correct Workings may be seen in stages Award B1 for (£)0.9(0) or 90(p) seen as the **total discount** FT 'their **derived or stated** (£)0.45 or (£)0.9(0)' Award M1 for: • 2 × (£)4.50 – 2 × (£)0.45 (£9 – 90p) • 2 × (£)4.50 – 1 × (£)0.45 + (£)1.40 (£9 – 45p + £1.40) • 1 × (£)4.50 – 2 × (£)0.45 + (£)1.40 (£4.50 – 90p + £1.40) • 1 × (£)4.50 – 1 × (£)0.45 + (£)1.40 (£4.50 – 45p + £1.40) • 2 × (£)4.50 – 2 × (£)0.45 + 2 × (£)1.40 (£9 – 90p + £2.80) • 2 × (£)4.50 + (£)1.40 (£)9 + (£)1.40 FT from M2 or M1 (Answers from M1: (£)8.10, (£)9.95, (£)5, (£)5.45 (£)10.90, (£)10.40) <u>If the discount is applied at the end:</u> Award M1 for 2 x £4.50 + £1.40 Award A1 for £10.40 Award SC1 for an answer of £9.36 (from £10.40 – 0.1 x £10.40 = £10.40 – £1.04) FT for SC1 for 0.9 × 'their 10.40' correctly evaluated provided M1 awarded <u>If the booking fee is added to the cost of each ticket and the discount is applied at the end:</u> Award M1 for: 2 x (£4.50 + £1.40) – 0.1 x (£4.50 + £1.40) Or £11.80 - £1.18 Award A1 for £10.62 If no marks awarded, award SC1 for (£)9 seen
Organisation and communication 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 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.

2(b) Seats G9 **and** G10 indicated on diagram 	B1	
2(c) (£)3.59 + (£)5.45 (£)9.04 (£)9.04 – (£)7.60 (£)1.44	M1 A1 M1 A1	No misread allowed CAO FT 'their derived or stated 9.04' provided 'their 9.04' > 7.60

3(a) Method, e.g. trial to cost with twice as many pots as saucers • 2 × 40 (+) 1 × 25 (= 105p) • 6 × 40 (+) 3 × 25	M1	Accept sight of 105(p) or (£)1.05 as suitable method Allow for a suitable pair of double the number of plant pots to saucers, e.g. 18 pots and 9 saucers with 18 × 40 and 9 × 25
Calculation that would lead to a total cost of £10.50 or 10 saucers, e.g. • 20 × 40 + 10 × 25 • 10 × (2 × 40 + 1 × 25) • 10 × (£)1.05 • 10 × 105(p) • 10(.)50 ÷ 1(.)05	A1	May be implied from sight of 10 saucers or 10 lots of 25p or (£)2.50
(Cost of 10 saucers 10 × 25p) (£)2.5(0)	B1	Must be as a final answer Answer space takes precedence Allow M1 A1 B1 for an unambiguous correct response

3(b) Method to compare the 3 packets, e.g. • For 1g of each considered: (Bee £2.49) Cornfield 15 ÷ 5 AND Butterfly 7.2(0) ÷ 3 • Complete comparison of Bee Mix (5g comparison with Cornfield) 5 × 2.49 AND then (3g comparison with Butterfly) 3 × 2.49 • Complete comparison of Butterfly Mix (1g comparison with Bee) Butterfly 7.2(0) ÷ 3 AND then comparison of Butterfly with Cornfield	M2	May be in stages with different pairs of mixes compared, eliminated and a further suitable pair compared M1 for method to compare 2 packets, e.g. • For 1g of each: (Bee £2.49) Cornfield 15 ÷ 5 or Butterfly 7.2(0) ÷ 3 • For 3g of each: (Butterfly £7.20) Bee 2.49 × 3 or Cornfield 3 × 15 ÷ 5 • For 5g of each: (Cornfield £15) Bee 2.49 × 5 or Butterfly 5 × 7.20 ÷ 3 • For 15g of each: Bee 15 × 2.49 and Cornfield 3 × 15 or Bee 15 × 2.49 and Butterfly 5 × 7.20 or Cornfield 3 × 15 and Butterfly 5 × 7.20
Accurate calculation(s) for comparison of **2** packets	A1	FT from M1 or M2 If units are given they must be correct, penalise once only
Accurate calculations for comparison of the **3** packets AND Conclusion, 'Butterfly Flower Mix', indicated or unambiguously implied	A1	

3(c)(i) (Area sown) ½ × (3.5 + 4.5) × 1.6 or 3.5 × 1.6 + ½ × (4.5 – 3.5) × 1.6 (= 5.6 + 0.8)	M1	Allow intention of brackets, may be implied in further working
6.4 (m^2)	A1	CAO FT only if an attempt to work with the trapezium to find 'their derived area', which may dimensionally incorrect, e.g. a length or a volume, otherwise no further FT. The calculation for 'their derived area' must include at least 2 of 3.5, 4.5 and 1.6
(Number of packets of seeds) 3	B1	(6.4 ÷ 2.5 = 2.56 so 3 packs) May be implied in further working FT 'their derived 6.4' ÷ 2.5 (rounded up to a whole number) provided both of the following conditions are met: • 'their derived 6.4' > 2.5 • 'their derived 6.4' ÷ 2.5 is not a whole number
(Cost of Cosmos seeds) 3 × 8(.)20	M1	Depends on either B1 previously awarded or on 'their derived 6.4' ÷ 2.5 rounded down to a whole number of packets > 1 Accept an equivalent full method
(£)24.60 or 2460(p)	A1	If units are given they must be correct If final B0 M0 A0, award SC1 for one of the following answers or equivalent in pence: • (8.20 ÷ 2.5 × 6.4 = 3.28 × 6.4 =) (£)20.99(2) or (£)21 • (8.20 ÷ 2.5 × 7 = 3.28 × 7 =) (£)22.96 • 'their derived area' × 3(.)28 correctly evaluated • 'their derived area rounded up to an integer' × 3(.)28 correctly evaluated
3(c)(i) 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 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
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.
3(c)(ii) 1 050 000	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 ÷ 4 or 3 × 280 ÷ 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 ÷ 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 × (0.)90 OR (cost for 1 portion) 2400 ÷ 40 or 24 ÷ 40 (Sells for a total of 40 × (0.)90) (£)36 or 3600(p) OR (cost for 1 portion 24 ÷ 40) 60 (p) or (£)0.60 (% profit) $\frac{36-24}{24}$ (×100) or $\frac{(0.)90-(0.)60}{(0.)60}$ (×100) or $\frac{36}{24}$ (×100) – 1 (×100) or $\frac{(0.)90}{(0.)60}$ – 1 (×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 × (0.)90' or 'their 24 ÷ 40' Accept a correct answer provided not from incorrect working, may be from reverse calculations or unsupported

6(a) Method, e.g. trial to cost with twice as many pots as saucers • 2 × 40 (+) 1 × 25 (= 105p) • 6 × 40 (+) 3 × 25	M1	Accept sight of 105(p) or (£)1.05 as suitable method Allow for a suitable pair of double the number of plant pots to saucers, e.g. 18 pots and 9 saucers with 18 × 40 and 9 × 25
Calculation that would lead to a total cost of £10.50 or 10 saucers, e.g. • 20 × 40 + 10 × 25 • 10 × (2 × 40 + 1 × 25) • 10 × (£)1.05 • 10 × 105(p) • 10(.)50 ÷ 1(.)05	A1	May be implied from sight of 10 saucers or 10 lots of 25p or (£)2.50
(Cost of 10 saucers 10 × 25p) (£)2.5(0)	B1	Must be as a final answer Answer space takes precedence Allow M1 A1 B1 for an unambiguous correct response

6(b) Method to compare the 3 packets, e.g. • For 1g of each considered: (Bee £2.49) Cornfield 15 ÷ 5 AND Butterfly 7.2(0) ÷ 3 • Complete comparison of Bee Mix (5g comparison with Cornfield) 5 × 2.49 AND then (3g comparison with Butterfly) 3 × 2.49 • Complete comparison of Butterfly Mix (1g comparison with Bee) Butterfly 7.2(0) ÷ 3 AND then comparison of Butterfly with Cornfield	M2	May be in stages with different pairs of mixes compared, eliminated and a further suitable pair compared M1 for method to compare 2 packets, e.g. • For 1g of each: (Bee £2.49) Cornfield 15 ÷ 5 or Butterfly 7.2(0) ÷ 3 • For 3g of each: (Butterfly £7.20) Bee 2.49 × 3 or Cornfield 3 × 15 ÷ 5 • For 5g of each: (Cornfield £15) Bee 2.49 × 5 or Butterfly 5 × 7.20 ÷ 3 • For 15g of each: Bee 15 × 2.49 and Cornfield 3 × 15 or Bee 15 × 2.49 and Butterfly 5 × 7.20 or Cornfield 3 × 15 and Butterfly 5 × 7.20
Accurate calculation(s) for comparison of **2** packets	A1	FT from M1 or M2 If units are given they must be correct, penalise once only
Accurate calculations for comparison of the **3** packets AND Conclusion, 'Butterfly Flower Mix', indicated or unambiguously implied	A1	

6(c) (Area sown) ½ × (3.5 + 4.5) × 1.6 or 3.5 × 1.6 + ½ × (4.5 – 3.5) × 1.6 (= 5.6 + 0.8)	M1	Allow intention of brackets, may be implied in further working
6.4 (m^2)	A1	CAO FT only if an attempt to work with the trapezium to find 'their derived area', which may dimensionally incorrect, e.g. a length or a volume, otherwise no further FT. The calculation for 'their derived area' must include at least 2 of 3.5, 4.5 and 1.6
(Number of packets of seeds) 3	B1	(6.4 ÷ 2.5 = 2.56 so 3 packs) May be implied in further working FT 'their derived 6.4' ÷ 2.5 (rounded up to a whole number) provided both of the following conditions are met: • 'their derived 6.4' > 2.5 • 'their derived 6.4' ÷ 2.5 is not a whole number
(Cost of Cosmos seeds) 3 × 8(.)20	M1	Depends on either B1 previously awarded or on 'their derived 6.4' ÷ 2.5 rounded down to a whole number of packets > 1 Accept an equivalent full method
(£)24.60 or 2460(p)	A1	If units are given they must be correct If final B0 M0 A0, award SC1 for one of the following answers or equivalent in pence: • (8.20 ÷ 2.5 × 6.4 = 3.28 × 6.4 =) (£)20.99(2) or (£)21 • (8.20 ÷ 2.5 × 7 = 3.28 × 7 =) (£)22.96 • 'their derived area' × 3(.)28 correctly evaluated • 'their derived area rounded up to an integer' × 3(.)28 correctly evaluated

6. (Change to MVR) 360 × 20 7200 (MVR) (Only 500 and 1000 notes, so can buy) 7000 (MVR) (Cost to Geralt for 7000 MVR is) 7000 ÷ 20 OR 360 – (7200 – 7000) ÷ 20 (£) 350	M1 A1 A1 M1 A1	 If not stated, may be implied by 7000 (MVR) FT provided M1 previously awarded FT 'multiple of 500 MVR' provided > 500 Depends only on previous M1 awarded If final M0 A0, award SC1 for (£)10 from 200 ÷ 20
6. Alternative method *Considers unambiguously 14 multiples of £25 or 7 multiples of £50 or equivalent, e.g.* • *500 MVR = £25 and 14 × 25* • *1000 MVR = £50 and 7 × 50* *(Considers nearest multiple of £25 < £360) (£)350* *(Buys) 350 × 20 or 7× 1000 or 14 × 500 or equivalent* *7000 (MVR)*	*M2* *A1* *M1* *A1*	*M1 for any one of the following:* • *500 MVR = £25* • *1000 MVR = £50* *FT 'their 350' provided < 360 and it is a multiple of 25*

8. Appropriate sight of (30 000 – 10 000 =) 20 000 (dollars) or (36 000 – 30 000 =) 6000 (dollars)	B1	Ignore £ or other currency for dollars May be implied in further working
(Tax at 10%) 0.10 × (30 000 – 10 000) or 0.10 × 20 000 or equivalent	M1	FT use of 'their (30 000 – 10 000)' from an error in subtraction
2000 (dollars)	A1	CAO
(Tax at 25%) 0.25 × 6000 or or 0.25 × (36 000 – 30 000) or equivalent	M1	FT use of 'their (36 000 – 30 000)' from an error in subtraction
1500 (dollars)	A1	CAO
(Total tax due) 3500 (dollars)	B1	ISW FT 'their 2000' + 'their 1500' provided both M1 marks previously awarded

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)

		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'

16.(a) Sight of 0·032 or equivalent e.g. 3·2% or $\frac{160}{5000}$	B1	Answer line takes precedence. ISW. Allow incorrect probability notation e.g. 160 out of 5000.
Explanation e.g. 'all data used', 'last point plotted', 'the number of batteries checked was the highest'.	E1	Accept any indication that the final reading should give the best estimate. Allow 'the more times you repeat an action, the more accurate the estimate is'.

16.(b)			May be done in any order.
$3000 \times 0{\cdot}033 \times 0.026$ or $3000 \times 0{\cdot}033 \times 2.6$		M2	May be seen in stages or implied in later working. Award M1 for sight of one of the following, allowing one place value error in 0·033 or 0.026 (may be embedded): • $3000 \times 0{\cdot}033$ • 99 • $3000 \times$ (£)0.026 • $3000 \times$ 2.6(p) • (£)78 or 7800(p) • $0.026 \times 0{\cdot}033$ • $2.6 \times 0{\cdot}033$ • 0·000858 • 0·0858. Award M1 for sight of the consecutive digits 99 or 78 or 858 in a number involving a place value error e.g. 990 but not 8990.
(£)2.57(4) or 257(.4)(p) ISW		A1	CAO. Allow (£)2.58 or 258(p) (If units are given they must be correct). Incorrect units may imply M2 A0. Award M1 A0 for one of the following answers: Answer / From 2(.)34 / $(3000 \times 0.026 \times 0{\cdot}03)$ 2(.)10(6) or 2(.)11 / $(3000 \times 0.026 \times 0{\cdot}027)$ 2(.)62(2) / $(3000 \times 0.026 \times 0{\cdot}029)$ 2(.)49(6) or 2(.)50 / $(3000 \times 0.026 \times 0{\cdot}032)$

18. (a) $45x + 23y = 89520$ or $23y + 45x = 89520$	B1	May be seen in part (b) as long as not contradicted by an incorrect equation in part (a). Award B1 if 89 520 or $45x + 23y$ seen in the table in (a), but $45x + 23y = 89520$ seen in (b).
18.(b) Method to eliminate one variable e.g. equal coefficients AND an appropriate intention to subtract or add (whichever is appropriate) or use a method of substitution. First variable found (The number of seated tickets sold, x =) 1560 or (The number of standing tickets sold, y =) 840 Second variable found.	 M1 A1 A1	No marks for 'trial and improvement'. No marks for unsupported answers. Answer lines take precedence. FT 'their equation' from (a) if of equivalent difficulty (e.g. both the coefficients of x and y are ≠ 0 and ≠ 1). Allow one error in one term (not the term with equal coefficients). CAO FT substitution of their '1st variable' evaluated correctly, provided M1 gained. If **both** correct answers are seen in working space, but contradicted on answer lines, award M1A1A0. Treat reversed answers as a slip (M1A1A1).