REVISE
.wales

F2.11 — Sequences, patterns & linear nth term

Mark schemes for the F2.11 question pack

Spec 2.3.1, 2.3.2, 2.3.3, 2.3.4 — Unit 2

SOLUTIONS · 2025 SPECIFICATION

Mark schemes for the 41 questions in the corresponding revise.wales question pack (93 marks total). Sources: legacy WJEC GCSE papers, WJEC SAM, and custom-authored mark schemes. Pack layout © revise.wales.

1.(a)	1 and −5		B2	B1 for 1. B1 F.T. for 'their 1' – 6.
1.(b)	– 6 + 70 = 64		B1 B1	B1 for sight of – 6 OR 70 (but not −70). B0 for −6x + 70y. C.A.O. Mark final answer.
1.(c)	6k – 5m		B2	Must be an expression for B2. B1 for sight of (+)6k OR sight of – 5m. B1 for 6k + – 5m. Mark final answer.

	OR 10, 11 and 18.			
6.(a)	−3, −1 and 1		B2	B1 for any two correct in the correct positions OR B1 for −5, −3 and −1 OR B1 for −1, 1 and 3.
6.(b)	4n + 3		B2	B1 for sight of 4n or n4 (but not $4n^k$ k≠1). Mark final answer

9. 10.3 cm 46° 59		B1 B1 B1	± 2 mm ± 2° ± 2° If B3 awarded, penalise -1 if the triangle is incomplete OR if a ruler is not used
10.(Number of circles on the length=)100 ÷ 5 (=20) OR (Number of circles on the width =)30 ÷ 5 (=6) (Number of circles =) 6 × 20 120	✓ ✓ ✓ ✓ ✓	M1 m1 A1 OC1 W1	Accept either 5 x 20 (=100) OR 5 x 6 (=30). FT 'their 6' and 'their 20' if M1 awarded CAO Organisation and Communication. For OC1, candidates will be expected to: • present their response in a structured way • explain to the reader what they are doing at each step of their response • lay out their explanation and working in a way that is clear and logical Accuracy of writing. 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

	OR 10, 11 and 18.		B1 for three numbers whose total = 39.
17.(a)	−3, −1 and 1	B2	B1 for any two correct in the correct positions OR B1 for −5, −3 and −1 OR B1 for –1, 1 and 3.
17.(b)	4n + 3	B2	B1 for sight of 4n or n4 (but not $4n^k$ k≠1).

		allow SC1 for sight of 15 e.g. '15/50', 15 : 35.
5.(a) Correct cuboid	B2	For B2, their cuboid must have edges along or parallel to the 3 directions usually associated with isometric paper (the two diagonals and the vertical). B1 for any one edge dealt with correctly for all its three occurrences in a cuboid. For any mark to be awarded the line must go 'through the dots' AND have both ends 'on a dot'. Ignore attempt at handling 'hidden lines'.
5.(b) (Volume =) 6 × 4 × 3 = 72 cm^3.	M1 A1 U1	Any further manipulation to 6 × 4 × 3 is M0. Independent of other marks.

6.(a)(i) Add 5 (to the previous term)	B1	Accept +5, goes up in 5.
6.(a)(ii) Multiply (the previous term) by 2	B1	Accept ×2, times 2, double.
6.(b) 1(.0)	B1	

14. Correct cuboid	B2	For B2, their cuboid must have edges along or parallel to the 3 directions usually associated with isometric paper (the two diagonals and the vertical). B1 for any one edge dealt with correctly for all its three occurrences in a cuboid. For any mark to be awarded the line must go 'through the dots' AND have both ends 'on a dot'. Ignore attempt at handling 'hidden lines'.

5.(a) Lines Curve	L1 C1	For all 3 straight lines. F.T. their lines, must have opposite curvature, starting at the correct place and ending at the start of their line.
5.(b) Rectangle	B1	
5.(c) Cylinder	B1	

5. (ABC or BAC =) $\frac{180 - 76}{2}$ = 52(°)	M1 A1	Angles may be shown on the diagram.
(CBP = 180 – 52 =) or (CBP = 76 + 52 =) 128(°)	B1	F.T. 'their derived, stated or shown 52' BUT not 76.
Organisation and Communication.	OC1	For OC1, candidates will be expected to: • present their response in a structured way • explain to the reader what they are doing at each step of their response • lay out their explanation and working in a way that is clear and logical
Accuracy of writing.	W1	For W1, candidates will be expected to: • show all their working • make few, if any, errors in spelling, punctuation and grammar • use correct mathematical form in their working • use appropriate terminology, units, etc

12. A number 'n' is chosen. $0{\cdot}25 \times n$ (or equivalent) OR $0{\cdot}2 \times n$ (or equivalent) $\div 5$ (or equivalent) OR $\div 4$ (or equivalent) $= \frac{n}{20}$ $= \frac{n}{20}$	M1 m1 A2	 For an **appropriate** 2nd step. A1 for each correct value (C.A.O.). Dependent on both M1 and m1.
If no number 'n' chosen. • 1/5 of 25% = 5% AND 1/4 of 20% = 5% with no further work • 1/5 of 25% = 5 AND 1/4 of 20% = 5 ISW • 1/5 of 25% = 5% OR 1/4 of 20% = 5% ISW		Award SC4 SC2 SC1 No marks for showing just one of the following. 1/5 of 25% = 5 OR 1/4 of 20% = 5

WJEC GCSE MATHEMATICS

SUMMER 2019 MARK SCHEME

<table>
<tr><th>GCSE Mathematics
Unit 1: Intermediate Tier</th><th>Mark</th><th>Comments</th></tr>
<tr><td>1.
<table>
<tr><td>23 – (4 + 2) × 3 = 5</td><td>TRUE</td><td></td></tr>
<tr><td>7/10 + 2/5 = 9/15</td><td></td><td>FALSE</td></tr>
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B2 for 4 correct.
B1 for 3 correct</td></tr>
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<tr><td><100</td><td>≥100</td><td><100</td><td>≥100</td></tr>
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B1 for 1 or 2 correct.
If no marks awarded allow B1 for all correct tallies seen.</td></tr>
<tr><td>2.(b) Any valid statement that indicates that the numbers (in the table) are added (to make 25).
e.g. ‘add the frequency’</td><td>E1</td><td>Allow ‘add them up’.
Allow sight of ‘8 + 7 + 4 + 6 (= 25).’</td></tr>
<tr><td>2.(c) $\frac{8}{25}$ or equivalent ISW</td><td>B2</td><td>B1 for x/25 with x<25.
B1 for 8/y with y >8.
Penalise incorrect notation −1.
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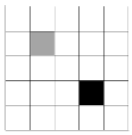
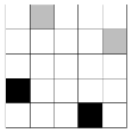
  </td><td>B1</td><td></td></tr>
<tr><td>3.(b)
  </td><td>B1</td><td></td></tr>
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 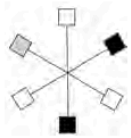 </td><td>B1</td><td></td></tr>
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Do not accept n÷3.</td></tr>
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WJEC GCSE MATHEMATICS (NEW)

SUMMER 2019 MARK SCHEME

GCSE MATHEMATICS Unit 2: Foundation Tier	Mark	Comments
1. (£)4.67 (£)5.84 (£)7.08 (£)1.45	B1 B1 B1 B1	
2.(a) Pentagon	B1	
2.(b) Rhombus	B1	Allow equilateral kite, but not kite or parallelogram.
2.(c) Cylinder	B1	Allow circular prism.
3.(a) (47,) 94, 141	B1	Ignore additional multiples.
3.(b) 52	B1	
3.(c) 209	B1	
4.(a) Midpoint unambiguously indicated	B1	Allow +/- 2 mm.
4.(b) Unambiguous parallel line drawn through C	B1	Allow +/- 2°.
5.(a) 9 (and) 16	B2	Allow 3^2 (and) 4^2. B1 for a sum of two square numbers less than 30 seen in workings or two square numbers less than 30 written on the answer line.
5.(b) Accept suitable explanations, e.g. • the sum of three even numbers will be even (and 23 is odd) • when you add any amount of even numbers the answer is always even (whilst 23 is odd). • (23 is odd, but) even + even + even = even	E1	Allow • even + even = even, • because 23 is odd.
6. FALSE TRUE FALSE TRUE	B2	For all four correct. B1 for 3 correct.
7.(a) 60 (%)	B2	B1 for equivalent fraction or decimal (0.6, 3/5, 12/20). If B2 not awarded, F.T. their fraction (except for ½, ¼ and ¾) correctly converted to a percentage for B1.
7.(b) Multiply by 4	E1	Accept other correct explanations e.g. divide (the number) by 5 then multiply by 20, double (the number) and double (it) again or divide by ¼.
7.(c) Accept suitable explanations, e.g. • 0.125 (is greater than) 0.1 • 5/40 (is greater than) 4/40	E1	Award E1 for other correct explanations e.g. a larger denominator means each part of the whole is smaller, or for correct evaluation of 1/8 and 1/10 of a chosen number.
8.(a) 65 (°)	B1	Allow ±2°
8.(b) 225°	B1	
8.(c) (Small angle = 180 ÷ 6 =) 30(°) (Large angle = 5 × Small angle =) 150 (°)	 B1 B1	Check diagram, though answer space takes precedence. F.T. 'their small angle' × 5 or 180 - 'their small angle ', provided answer is less than 180°. If no marks awarded, award B1 for both correct angles given in reverse.

8. P(Alison chooses letter R) = 2/10 or equivalent. P(Sarfraz chooses letter R) = ¼ or equivalent. Use of 2/10 × 100 OR ¼ × 100 20 AND 25 clearly implying that Sarfraz is the most likely to choose letter R	B1 B1 M1 A1	B1 for sight of 2/10 if unambiguously for Alison. B1 for sight of 1/4 if unambiguously for Sarfraz. As probability not asked for, allow e.g. '2 chances in 10' and 'one chance in four'. B1 marks may be implied in subsequent work. Calculation may be done in stages. There is no requirement to tick the box as long as there is no contradiction. Do not accept, on its own, e.g. 'Sarfraz has less letters to choose from' for the A1.
8. Alternative method *P(Alison chooses letter R) = 2/10* or equivalent. *P(Sarfraz chooses letter R) = ¼* or equivalent. *Attempting to give probabilities in a common format.* *Correct common format* *e.g. 4/20 AND 5/20 or 0·2 AND 0·25* *clearly implying that Sarfraz is the most likely to choose letter R*	*B1* *B1* *M1* *A1*	*B1 for sight of 2/10 if unambiguously for Alison.* *B1 for sight of 1/4 if unambiguously for Sarfraz.* *As probability not asked for, allow* *e.g. '2 chances in 10' and 'one chance in four'* *There is no requirement to tick the box as long as there is no contradiction.* *Do not accept, on its own, e.g.* *'Sarfraz has less letters to choose from' for the A1.*

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<tr><td>8(a) $5p$</td><td>B1</td><td></td></tr>
<tr><td>8(b) (i) (x =) 8</td><td>B1</td><td>Accept embedded answer</td></tr>
<tr><td>8(b) (ii) (y =) 15</td><td>B1</td><td>Accept embedded answer</td></tr>
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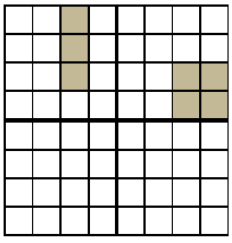
	= 1440(°)	A1	
14.(a)	−5 −2 3	B2	B1 for two correct (in correct position) OR B1 for −6, −5, −2
14.(b)	6n – 1 or equivalent	B2	B1 for sight of 6n. Mark final answer

WJEC GCSE MATHEMATICS

AUTUMN 2020 MARK SCHEME

GCSE Mathematics Unit 2 Intermediate Tier	Mark	Comments
1.(a)(i) 16	B1	
1.(a)(ii) 2160	B2	B1 for sight of 2155(·.....) OR 2150 OR 2156. Mark final answer.
1.(b) 0·62 × 7·8 or equivalent. = 4·836 ISW	M1 A1	Unsupported 4·8.... implies M1. Accept $4\frac{209}{250}$ (ISW). Allow 1209/250 (ISW)
1.(c)(i) 247	B1	
1.(c)(ii) 2197	B1	
2.(a) 6 −5	B2	B1 for 6. B1 FT for correct evaluation of 'their 6' − 11 **only** if it leads to a negative answer.
2.(b) 15	B2	B1 for sight of 28·8 OR −13·8. Mark final answer.
3. $\frac{400}{17{\cdot}5}$ or $\frac{4}{0{\cdot}175}$. = 22·8(....) or 22·9 (Number of rods =) 22	M2 A1 B1	M1 if incorrect place value (in either length). Digits 228..... implies M1. C.A.O. FT if of equivalent difficulty. (i.e. 'their 22·8' must be greater than 1 AND their 1st decimal place number greater than or equal to 5.) Answer of 22 gains all 4 marks. Unsupported answer of 23 gains M2A0B0.
3. Alternative method (trial and improvement) *Working with a multiple of 17·5 or 0·175.* *(n × 17·5 or n × 0·175)* *22 × 17·5 (= 385) or 22 × 0·175 (= 3·85)* *23 × 17·5 (= 402·5) or 23 × 0·175 (= 4·025)* *(Number of rods =) 22*	*S1* *B1* *B1* *B1*	*Award this S1 only if* *n > 2 and n ≠ 4 and n ≠ 400.* *This implies previous S1.* *This implies previous S1 and previous B1 if 402·5 seen.* *Must be seen in answer space or unambiguously identified (not simply embedded).* *Answer of 22 gains all 4 marks.* *Unsupported answer of 23 gains S1B0B1B0.*
4.(a) **All** labels correctly inserted (Number) **1 2 3 4 5** **Red** (Colour) **Yellow** (Pink) All outcomes correctly inserted	B1 B1	Must be inserted in the table and not simply inferred from the outcomes. Accept 'R' for Red and 'Y' for Yellow. Allow 'Red' for 'R' etc. Allow '1R' for 'R1' etc.
4.(b) $\frac{2}{15}$ or equivalent ISW.	B2	*(No FT from an incorrect grid in 4a)* B1 for a numerator of 2 in a fraction < 1. B1 for a denominator of 15 in a fraction < 1. Allow B2 for 0·13... Penalise −1 for incorrect notation eg '2 out of 15', '2 : 15' etc.
5.(a) 	B2	B1 for either individual shape. Ignore clearly deleted shading.

WJEC GCSE MATHEMATICS

AUTUMN 2020 MARK SCHEME

GCSE Mathematics Unit 1: Foundation Tier	Mark	Comments
1. (a) Angle of 35° drawn at A	B1	Accept 33° to 37° Point alone is not sufficient.
1.(b) Circle radius 7cm (diameter 14 cm)	B1	Accept radius 6.8 (cm) to 7.2 (cm)
2.(a) 5433	B1	
2.(b) 174	B1	
2.(c) 75	B1	
2.(d) 6 × 7 ÷ 2 = 21	M1 A1	If no marks, award SC1 for sight of 42.
3.(a) 600	B1	
3.(b) 4000	B1	
4.(a) D	B1	
4.(b) S	B1	
5.(a) 9	B1	
5.(b) ÷ –	B1	
6.(a) 53	B1	
6.(b) 125	B1	
7.(a) 70 (%)	B1	
7.(b) 6 sectors shaded	B1	
8. 1/3 × 180(°) OR 2/3 × 180(°) or equivalent 60(°) OR 120(°) (180 – 60 =) 120 (°) OR (180 – 120 =) 60 (°)	M1 A1 B1	 A1 for either 60(°) OR 120(°) FT 'their 60' or 'their 120'. Two angles which add to 180(°) will get this B1. If no marks award SC1 for one angle twice the size of the other.
Alternative Method *2x + x = 180 (°) or 3x = 180 (°)* *x = 60 (°)* *2x = 120 (°)*	 M1 A1 B1	 *FT 2 × 'their x' or 180 – 'their x'*
9.(a) 16g	B1	
9.(b) (y =) 9	B1	Accept embedded answers. Mark final answer.
9.(c) (w =) 30	B1	Accept embedded answers. Mark final answer.

8. (Probability of Puffin Island=) 1 − 0·4 − 0·15 − 0·25 = 0·2	M1 A1	An unsupported answer of 0·56 implies M1
(Number of cards showing Puffin Island =) 0·2 × 80	M1	FT 'their stated P(Puffin Island)' × 80, only if 'their stated P(Puffin Island)' < 1.
= 16	A1	16/80 is M1A0 unless 16 has been seen.
Alternative method *(Number of cards showing other 3 islands =)* *0·4 × 80 + 0·15 × 80 + 0·25 × 80 or equivalent* *= 64*	*M1* *A1*	*Allow M1 for sight of 32 AND 12 AND 20.*
(Number of cards showing Puffin Island =) 80 – 64	*M1*	*FT 80 − 'their derived 64', only if 'their derived 64' < 80.*
= 16	*A1*	*16/80 is M1A0 unless 16 has been seen.*
8. OCW Organisation and Communication.	OC1	For OC1, candidates will be expected to: • present their response in a structured way • explain to the reader what they are doing at each step of their response • lay out their explanation and working in a way that is clear and logical • write a conclusion that draws together their results and explains what their answer means
Accuracy of writing.	W1	For W1, candidates will be expected to: • show all their working • make few, if any, errors in spelling, punctuation and grammar • use correct mathematical form in their working • use appropriate terminology, units, etc
9.(a) Correct construction method. e.g. (i) intersecting arcs of radii 6cm and 9cm with centres A and C respectively. OR (ii) copying the angle at B at the point A (will require AB or BA to be extended).	M1	Relevant construction arcs must be seen.
Completed parallelogram.	A1	
9.(b) 'measured length' × 200	M1	Allow for error in measuring line XY.
= 1520 (cm)	A1	Accept only in range 1480 to 1560 inclusive.
= 15·2 metres	B1	FT 'their 1520' ÷ 100. Unsupported 14·8 to 15·6 inclusive gains all 3 marks.
Alternative method *Sight of scale is 1cm represents 2m*	*B1*	
'measured length' × 2	*M1*	*Allow for error in measuring line XY.*
= 15·2 metres	*A1*	*Accept only in range 14.8 to 15.6 inclusive.*
10.(a) 9·231	B1	
10.(b) 170	B1	
10.(c) 10	B1	
11(a) 5n − 3	B2	B1 for sight of 5n. Mark final answer.
11.(b) 17	B1	
11.(c) 2n + 2 OR 2(n + 1)	B2	If 2n + 2 is not their final answer allow B1 for sight of 2n + 2 in earlier work. B1 for a correct answer not simplified or incorrectly simplified e.g. n + n + 2.

9. (Length of sides of Ivy's Cuboid B =) 3cm, 12cm, 20cm (Volume of Ivy's Cuboid =) 3 x 12 x 20 = 720 (cm^3)	B1 M1 A1	May be implied in further working. F.T. provided two of the dimensions are correct.
Alternative method *(Volume of Gareth's cuboid = 3 x 2 x 4 =) 24 (cm^3)* *(Volume of Ivy's cuboid =) 24 x 6 x 5* *= 720 (cm^3)*	*B1* *M1* *A1*	*F.T. for their stated volume for 'Gareth's cuboid'*
9. OCW Organisation and Communication Accuracy of 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 explanation 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.
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12. $\frac{400}{17{\cdot}5}$ or $\frac{4}{0{\cdot}175}$. = 22·8(....) or 22·9 (Number of rods =) 22	M2 A1 B1	M1 if incorrect place value (in either length). Digits 228..... implies M1. C.A.O. FT if of equivalent difficulty. (i.e. 'their 22·8' must be greater than 1 AND their 1st decimal place number greater than or equal to 5.) Answer of 22 gains all 4 marks. Unsupported answer of 23 gains M2A0B0.
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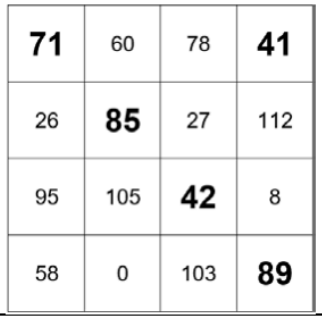
WJEC GCSE MATHEMATICS

AUTUMN 2021 MARK SCHEME

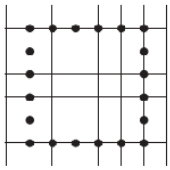
Unit 2: Foundation Tier	Mark	Comments
1.(a) 5169	B1	
1.(b) 6502	B1	
1.(c) 186	B1	
1.(d) 45	B1	
2.(a) 5, 5, 5, 5	B1	
2.(b) Exactly two 3s and any other two numbers	B1	Accept in any order.
2.(c) Exactly one 2 and any other three numbers	B1	Accept in any order.
3.(a) 40 065	B1	
3.(b) 5400	B1	
4.(a) rhombus	B1	
4.(b) equilateral triangle	B1	
5. 	B3	B2 for 3 rows or 3 columns with a total of 250. B1 for 1 or 2 rows or 1 or 2 columns with a total of 250.
6.(a) 98	B1	
6.(b) Subtract 13 (from the previous term)	B1	Accept -13, goes down in 13s, etc.
6.(c) x-2 (years old)	B1	Mark final answer.
7.(a) Sum of numbers (262) Sum of numbers ÷ 4 65.5 or equivalent	M1 m1 A1	Allow for an unsupported value between 173 and 351. Award this m1 for 'their sum' ÷ 4 CAO. Allow 131/2. If no marks awarded, allow SC1 for (64 + 89 + 83 + 26 ÷ 4 =) 242.5 or equivalent.
7.(b) (65.5 + 1 =) 66.5	B1	F.T. 'their mean' from (a). Allow 133/2.
8.(a) 23.04	B1	Accept $23\ ^{1}/_{25}$ or equivalent e.g. 576/25
8.(b) 7.9	B1	Accept $7\ ^{9}/_{10}$ or equivalent e.g. 79/10
8.(c) 0.04 × 325 or equivalent = 13 ISW	M1 A1	
9. (Oliver's number is) 90	B3	B2 for a final answer between 40 and 95 satisfying 2 of the 3 conditions. (45, 54, 60, 72) B1 for a final answer between 40 and 95 satisfying only 1 of the 3 conditions. (40, 42, 44, 46, 48, 50, 52, 56, 58, 62, 63, 64, 66, 68, 70, 74, 75, 76, 78, 80, 81, 82, 84, 86, 88, 92, 94)
OC Organisation and Communication.	OC1	For OC1, candidates will be expected to: • present their response in a structured way • explain to the reader what they are doing at each step of their response • lay out their explanation and working in a way that is clear and logical • write a conclusion that draws together their results and explains what their answer means

5.(a) (0)7:45 23 (March)	B2	B1 for each. B0 for (0)7:45 p.m.
5.(b) Sight of 5 miles ≡ 8 km or equivalent. Shows 15 miles to be 24 km AND a valid statement e.g. 'yes (it's nearly 25 km'), 'no (it's only 24 km').	B1 B1	Allow a more accurate conversion (5 miles ≡ 8 to 8·05 km). Do not accept 3 miles ≡ 5 km '15 miles is 24 km' with no statement is B1B0. Accept a one word decision of 'Yes' or 'No' as a statement.
Alternative method *Sight of 8 km ≡ 5 miles or equivalent.* *Shows 25 km to be 15·625 miles AND a valid statement e.g.* *'yes (it's just over 15 miles'), 'no (it's over 15 miles)'.*	*B1* *B1*	*Allow a more accurate conversion* *(8 km ≡ 4·97 to 5 miles).* *Do not accept 5 km ≡ 3 miles* *'25 km is 15·625 miles' with no statement is B1B0.* *Accept a one word decision of 'Yes' or 'No' as a statement.*
6. Correct strategy of √(Area ABCD – 32) (Area ABCD =) 81 (cm^2) (Area PQRS = 81 – 32 =) 49 (cm^2) (PQ = √49 =) 7 (cm)	S1 B1 B1 B1	 FT 'their stated area of ABCD' – 32. FT √'their stated area of PQRS' but not √32 or √9 A final answer of 7(cm) gains all four marks. May be seen on the diagram. (FT answers must be rounded or truncated to 1dp or more)
7.(a) 1·442	B2	B1 for sight of 1·44(1……) or 1·44(2……)
7.(b) 191	B3	B2 for sight of 190(·5…..) or 190·6 B1 for sight of 280.
8. (P(Gold) =) 1 – 0·68 – 0·22 = 0·1 22 people choose silver AND 10 people choose gold (Profit =) 100 × (£)2 – 22 × (£)3 – 10 × (£)8 = (£)54	M1 A1 B1 M1 A1	 May be seen in the table. FT 100 × 'their 0·1'. The 10 implies previous M1A1. The 22 and 10 may be seen in further work. FT 'their stated number of winners (silver and gold)'.
Alternative method1 *(P(Gold) =) 1 – 0·68 – 0·22* *= 0·1* *22 people choose silver AND 10 people choose gold* *(Profit =) 68 × (£)2 – 22 × (£)1 – 10 × (£)6* *= (£)54*	*M1* *A1* *B1* *M1* *A1*	 *May be seen in the table.* *FT 100 × 'their 0·1'. The 10 implies previous M1A1.* *The 22 and 10 may be seen in further work.* *FT 'their stated number of winners (silver and gold)'.*
Alternative method 2. *(P(Gold) =) 1 – 0·68 – 0·22* *= 0·1* *(Profit per game =)(£)2 – 0·22 × (£)3 – 0·1 × (£)8* *= (£)0·54* *(Total profit = £0·54 × 100 =) (£)54*	*M1* *A1* *M1* *A1* *B1*	 *May be seen in the table.* *FT 'their 0·1.* *FT 'their derived £0·54'.*
Alternative method 3. *(P(Gold) =) 1 – 0·68 – 0·22* *= 0·1* *(Profit per game =)0·68×(£)2 – 0·22×(£)1 – 0·1×(£)6* *= (£)0·54* *(Total profit = £0·54 × 100 =) (£)54*	*M1* *A1* *M1* *A1* *B1*	 *May be seen in the table.* *FT 'their 0·1.* *FT 'their derived £0·54'.*
9.(a) −1·3 0·4 2·1	B2	B1 for two correct in the correct position. OR for −3, −1·3, 0·4.
9.(b) 10(th term)	B1	Allow B1 for 10(th) and 14. B0 if only 14 given in answer space. NOTE: If answer to 9(a) is −3, −1·3, 0·4 then allow an answer of 11(th term)

(Larger angle =) 105(°)		angle is 90° or 0°.
7.(a) Subtract fourteen (from the previous term)	B1	Accept 'take away fourteen', 'goes down in fourteens' and '-14'. B0 for 14 alone or 'there is 14 between each number'.
7.(b) 736	B1	
7.(c) n − 14 (oe)	B1	Mark final answer

13.	$-6n+21$ or equivalent	B2	B1 for sight of $-6n$. If no marks, award SC1 for $6n+21$.

<table>
<tr>
<td>15. (a) Any n, as a whole number, which results in
$7n - 9$ being a multiple of 4</td>
<td>B2</td>
<td>Answer space takes precedence and must not be from incorrect working.
Do not ignore crossed-out work for this question.
Award B1 for any one of:
• any 2 correctly evaluated terms in the sequence $7n - 9$ (i.e. not leading to, or not recognised as leading to, a multiple of 4 for their choice of n) or
• setting up an equation $7n - 9 = 4 \times k$ (where $k \geq 1$ and a whole number) and attempt to solve
• a correct value of n substituted in $7n - 9$, but contradiction or no answer given on answer line (e.g. 7×3 – 9 = 12 and 12 written on answer line or answer line left blank)
<table><tr><td>n</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td><td>11</td><td>.....</td></tr><tr><td>$7n - 9$</td><td>-2</td><td>5</td><td>12</td><td>19</td><td>26</td><td>33</td><td>40</td><td>47</td><td>54</td><td>61</td><td>68</td><td>.....</td></tr></table>
Note: Award B0 for a correct value of n from incorrect working
e.g. if 7 × 4 – 9 = 19, then n = 19 on the answer line.</td>
</tr>
<tr>
<td>15. (b) Any n, as a whole number, which results in
$3n - 5$ being a prime number</td>
<td>B2</td>
<td>Answer space takes precedence and must not be from incorrect working.
Do not ignore crossed-out work for this question.
Award B1 for any one of:
• any 2 correctly evaluated terms in the sequence $3n - 5$ (i.e. not leading to, or not recognised as leading to, a prime number for their choice of n) or
• setting up an equation $3n - 5$ = a prime number and attempt to solve
• a correct value of n substituted in $3n - 5$, but contradiction or no answer given on answer line (e.g. 3×4 – 5 = 7 and 7 written on answer line or answer line left blank)
• a correct value of n substituted in $3n - 5$, but n contradicted for their workings (but n still leads to a prime number) given on answer line (e.g. 3×4 – 5 = 7 and 12 written on answer line or answer line left blank).
<table><tr><td>n</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td><td>11</td><td>.....</td></tr><tr><td>$3n - 5$</td><td>-2</td><td>1</td><td>4</td><td>7</td><td>10</td><td>13</td><td>16</td><td>19</td><td>22</td><td>25</td><td>28</td><td>.....</td></tr></table>
Note: Award B0 for a correct value of n from incorrect working
e.g. if 3 × 4 – 5 = 13, then n = 13 on the answer line.</td>
</tr>
</table>

		E0.
5.(a) 4a	B1	
5.(b)(i) 	B1	Ignore lines joining dots up. B0 for solely drawing a 6x6 square without dots.
5.(b)(ii) 4 × 7 OR 4 x 8 – 4 OR 4 x 6 + 4 OR 64 – 36 or equivalent = 28	M1 A1	Award M1 for any correct method that would yield an answer of 28 if evaluated correctly.

5.(c) (7 × 36 + 5 × 29 = 252 + 145 =) 397	B2	Mark final answer. Award B1 for sight of one of the following: • 252 (not $252w$) • 145 (not $145y$) • $397wy$ or $397w$ or $397y$
Accuracy of writing.	W1	For W1, candidates will be expected to: • show all their working • make few, if any, errors in spelling, punctuation and grammar • use correct mathematical form in their working • use appropriate terminology, units, etc

11. (a) 17	B1	Mark final answer.
11. (b) −1	B1	Mark final answer.

20. . $\frac{20 \times 60}{400}$ or $\frac{20 \times 59}{400}$ = 3 or 2·95	M1 A1	May be seen in stages. CAO Unsupported answer is M0 A0
21 (a) 17	B1	Mark final answer.
21 (b) –1	B1	Mark final answer.
22. $\frac{2}{15}$	B2	For B2, the answer must be in its simplest form. Award B1 for sight of $\frac{40}{300}$ or equivalent
23. (Area of square =) 184 – [15 × 9] = 49 (cm^2) (Length of side of square =) 7 (cm) (Perimeter of square = 4 × √49 =) 28 (cm)	M2 A1 A1 B1	Award M1 for sight of 15 × 9 or 135 (cm^2) FT from M2 only, √'their 49' Maybe embedded or written on diagram FT 'their derived 7' May be written on diagram.

3.		Answer space takes precedence.
Isaac **36**	B1	CAO
Nadia **12**	B1	FT ⅓ of 'their Isaac'. Allow truncation or rounding where a whole number does not result on FT.
Dewi **24**	B1	FT 2 × 'their Nadia'. Allow truncation or rounding where a whole number does not result on FT. If no answers are given on answer space, ages must explicitly be identified as a final answer for a possible B1B1B1.

7.(b) square	B1	
8.(a)(i) subtract eleven (from the previous term)	B1	Accept 'take away 11', '– 11' or '73 - 11n'. B0 for $n - 11$.
8.(a)(ii) multiply (previous term) by four	B1	Accept 'times by 4' or '× 4'. B0 for $n \times 4$
8.(b)(i) (x =) 31	B1	Accept embedded answers, unless contradicted.
8.(b)(ii) (x =) 193.1	B1	Accept embedded answers, unless contradicted.

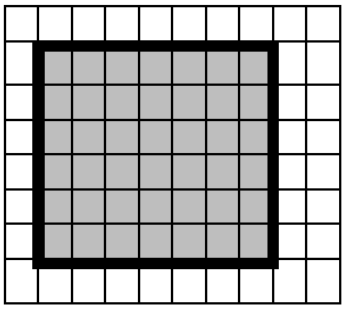
			A final answer of 0·875 is awarded B1B0.
10.	$\frac{3}{4} \times 512$ OR $512 - \frac{1}{4} \times 512$ or equivalent	M1	Award M1 for full method for calculating the OUTPUT.(Note: 512 – 128).
	= 384	A1	
	$\frac{3}{4} \times 384$ OR $384 - \frac{1}{4} \times 384$ or equivalent	M1	Award M1 for full method for calculating the OUTPUT.(Note: 384 – 96). FT 'their 384' if greater than 300.
	(OUTPUT =) 288 ISW	A1	FT if 'their 288' < 300, or further evaluation correctly carried out until their output < 300. If no marks gained allow SC1 for sight of 128. Award M2 for $\frac{9}{16} \times 512$ with answer of 288 is awarded A2.

4

12.(a)	$\frac{1}{6}$	B1	

	31	43	47	B2	Award B2 for all three primes. Accept in any order. Award B1 for two correct primes. If no answers given on answer spaces, and numbers given are circled/clearly indicated, award B1 for one of the following: • two correct primes provided no more than 3 numbers selected • all 3 primes and 1 incorrect number if 4 numbers selected.

1.(a) 161	B1	
1.(b) 1241	B1	

4. 	B2	B1 for any one of the following: • a rectangle with length = 7 • a rectangle with width = 6 • drawing pattern 4 i.e. length = 6 AND width = 5 • drawing pattern 6 i.e. length = 8 AND width = 7 • drawing the correct pattern in the wrong orientation

9. (Amount of tea in full cup =) (44 ÷ 2) × 7 or equivalent = 154 (ml)	M1 A1	M1 for full complete method. May be seen in stages. If M0 awarded, award SC1 for one of the following: • appropriate sight of 22 • final answer of 61·6(ml) (from (44 ÷ 5) × 7).
9. Alternative method *(Amount of tea in full cup =)* *(44 ÷ 2) × 5 + 44* *= 154 (ml)*	*M1* *A1*	*M1 for full complete method.* *May be seen in stages.* *If M0 awarded, award SC1 for appropriate sight of 22.*

19. Correct equation e.g. $\frac{50x+10-21x+9}{(15)} = \frac{9\times 3\times 5}{(15)}$ $(29x+19=135)$ $\quad 29x=116$ $x=4$	B2 B1 B1	FT until 2nd error. Award B1 for one of the following: • 1 error in one term • Sight of $5(10x+2)$ AND $-3(7x-3)$ or equivalent • Sight of $50x+10-21x+9$. Subsequent work may show use of common denominator in order to award the B2. Mark final answer. Award the final B0 for $\frac{116}{29}$. If FT leads to a whole number answer, it must be shown as a whole number. Otherwise, accept a fraction. Allow B2B1B1 for a correct embedded answer BUT only B2B1B0 if contradicted by $x \neq 4$ or equivalent. Note 1: $\frac{50x+10-21x-9}{(15)} = \frac{135}{(15)}$ B1 (one error –9) $29x = 134$ B1 $x = \frac{134}{29}$ B1 Note 2: $\frac{50x+10-21x+9}{(15)} = \frac{9}{(15)}$ B1 (one error =9) $29x = -10$ B1 $x = \frac{-10}{29}$ B1 Note 3: $\frac{50x+10-21x-9}{(15)} = \frac{9}{(15)}$ B0 B0 B0 (2 errors –9 & 9) Award B2B1B1 for unsupported answer of 4, or for an answer which has come from a non-algebraic method.

3. (The first three terms are) 4, 9 and 14 (Sum =) 27	B2 B1	May be in any order or in a sequence with other subsequent terms. Award B1 for one of the following: • any two of 4, 9 and 14 given as first three terms e.g. -1, 4, 9 • -1, 4, 9, 14… • 6, 11, 16 (from using $5n+1$) • $4n$, $9n$, $14n$. FT their unambiguously identified first three terms, provided at least B1 previously awarded (but not from $4n$, $9n$, $14n$). Award all three marks for an unsupported answer of 27.
3. Alternative Method *(Sum =) 5 (1 + 2 + 3) – 3 × 1 or equivalent* *= 30 – 3* *= 27*	*M1* *M1* *A1*	*FT 'their 5 (1 + 2 + 3)' –'their 3 × 1'.*

			• 5 6 AND 3 7
5.	(Second term =) 15 (Third term =) 19	B1 B1	 FT 'their 15' + 4 correctly evaluated.

Unit 1: Foundation Tier	Mark	Comments
6.(a) 103	B1	
6.(b) 2500 1250	B1 B1	 FT 'their 2500' ÷ 2

14. (The first three terms are) 4, 9 and 14 (Sum =) 27	B2 B1	May be in any order or in a sequence with other subsequent terms. Award B1 for one of the following: • any two of 4, 9 and 14 given as first three terms e.g. -1, 4, 9 • -1, 4, 9, 14… • 6, 11, 16 (from using $5n+1$) • $4n$, $9n$, $14n$. FT their unambiguously identified first three terms, provided at least B1 previously awarded (but not from $4n$, $9n$, $14n$). Award all three marks for an unsupported answer of 27.
14. Alternative Method *(Sum =) 5 (1 + 2 + 3) – 3 × 1 or equivalent* *= 30 – 3* *= 27*	*M1* *M1* *A1*	*FT 'their 5 (1 + 2 + 3)' –'their 3 × 1'.*

5(a) 25400 or twenty-five thousand (and) four hundred	B1	
5(b) 61	B1	
5(c) 2500(g)	B2	B1 for any one of the following: • $\frac{10 \times 1000}{4}$ • 10000 ÷ 4 • 2.5 • the consecutive digits 2 and 5 in an answer with no other non-zero digits e.g. 0.25, 25, 250,… • 'their derived 10 ÷ 4' × 1000 • an answer of 2200

End of solutions