



GCSE MARKING SCHEME

AUTUMN 2020

GCSE MATHEMATICS – COMPONENT 2 (FOUNDATION TIER) C300U20-1

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INTRODUCTION

This marking scheme was used by WJEC for the 2020 examination. It was finalised after detailed discussion at examiners' conferences by all the examiners involved in the assessment. The conference was held shortly after the paper was taken so that reference could be made to the full range of candidates' responses, with photocopied scripts forming the basis of discussion. The aim of the conference was to ensure that the marking scheme was interpreted and applied in the same way by all examiners.

It is hoped that this information will be of assistance to centres but it is recognised at the same time that, without the benefit of participation in the examiners' conference, teachers may have different views on certain matters of detail or interpretation.

WJEC regrets that it cannot enter into any discussion or correspondence about this marking scheme.

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EDUQAS GCSE MATHEMATICS

AUTUMN 2020 MARK SCHEME

GCSE (9-1) Mathematics Component 2: Foundation Tier	Mark	Comment
1.(a)		
108	B1	
1.(b)	D4	
29 1.(c)	B1	
18	B1	
1.(d)		
343	<u>B1</u>	
	(4)	
2. (a)		
(34 × 6) ÷ 8	M1	May be seen in stages.
= 25.5	A1	
2.(b)		If no marks, award SC1 for sight of 204.
$(80 - 14) \div 5.75$	M2	May be implied by 14 + 5.75 × 11 = 77.25 from
		trials
		M1 for a correct trial of $14 + 5.75 \times n$ where $n > 1$
		or M4 for 90 14
11	A1	M1 for 80 – 14 CAO
		An answer or 11.4(7) or 11.5 implies M2 A0.
		14 + 5.75 × 11 = 77.25 gains M2 A0 unless 11
		days is indicated as their answer.
	(5)	
3.(a)(i)		May be in pence but units must be consistent
(2.74 + 0.62) × 4	M2	M1 for sight of any one of
		• 4 × 2.74 (=10.96)
		• 4×0.62 (=2.48)
(£)13.44 or 1344(p)	A1	• 2.74 + 0.62 (=3.36) If units are given, they must be correct.
		Allow £13.44p
		If no marks, award
		SC2 for an answer of (£)10.08 or SC1 for (2.74 + 0.62) × 3
3.(a)(ii)		
(£)6.56 or 656(p)	B1	FT 'their (£)13.44'
		If units are given, they must be correct. Allow £6.56p
3.(b)		May be in pence but units must be consistent
2.74 + 0.62 + 1.15 - 3.79	M1	FT 'their 3.36' + 1.15 – 3.79
(£)0.72 or 72(p)	A1	If units are given, they must be correct.
	(6)	Allow £0.72p
	(0)	
4.(a)(i)		
ž	B1	
~		
4.(a)(ii)		
7 4.(a)(iii)	B1	
98	B1	
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4.(b) (Number of triangles =) 2 × number of squares oe	B1	ISW Allow e.g. '2 × squares' 'double the number of squares' 'squares doubled' ' S x 2' Do not allow e.g. '× 2' '2 × pattern number' 'for each square there are two triangles' 'one square and two triangles' 'the triangles go up in two's the square's go up in one's'
	(4)	·
5.(a)		
(x =) 180 - 40 - 77	M1	
63(°)	A1	
5.(b) (<i>y</i> =) 180 - 90 - 32	M1	
<u>58(°)</u>	A1	
6.(a)	(4)	
(-1, -3) and $(3, -3)$ marked	B2	B1 for two points that make a rectangle
		Ignore not labelled or incorrectly labelled points if
A 2 B		the marked points are unambiguous.
-4 -3 -2 -1 0 1 2 3 4 5 6 7 x		
-1		
(D) • -3 • (C)		
-4		
6.(b)(i) (7, 2) marked	B1	
A 2 B (E)		
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$		
6.(b)(ii)	D4	ET 'thoir E'
(7, 2)	B1 (4)	FT 'their <i>E'</i>
7.(a) (22, 14) \div 4 or 9 or equivalent	M1	Allow repeated subtraction of 4 pipe times with
(22 – –14) ÷ 4 or 9 or equivalent		Allow repeated subtraction of 4 nine times with one arithmetic error
17(:)00 or 5p.m.	A1	An answer of 5 a.m. or 5 o'clock implies M1A0
7.(b)	+	
7 (°F)	B1	Allow 6.5 to 7.5 inclusive.
	(3)	

D	N A	Т
Г	IVI	1

	1	1
8.(a)		
oe	B1	ISW
500	ы	Do not accept incorrect notation e.g
		'1 out of 500'
8.(b)		
300		
—— or 0.6 oe	B1	ISW
500		Do not accept incorrect notation e.g
		'300 out of 500'
		NOTE: If no marks awarded in (a) or (b) award
		SC1 for consistent incorrect notation
		e.g '1 out of 500' AND '300 out of 500'.
8.(c)		Allow o g
No and a correct explanation e.g.	E1	Allow e.g. 'Ben winning and losing are not equally likely.'
'The probability is $\frac{8}{522}$ (so less than 50%)'		'He will have an 8 in 500 chance of winning.'
500 'He has less than half the tickets so less		'He needs more tickets to have a 50% chance.'
than 50% chance.'		'He hasn't bought 50% of the tickets.'
'He would have to buy 250 tickets to have a		ne haan tooght oo /t of the toketa.
50% chance of winning.'		
		Do not allow e.g.
		'Winning and losing are not equally likely.'
		'he only has 8 out of 500 tickets'
0 (1)()		·
8.(d)(i)	Б1	
0.99 oe	B1	
8.(d)(ii) 0.01 × 500 or 500 – (0.99 × 500)	M1	Accept $\left(\frac{1}{100}\right) = \frac{5}{500}$ for M1
0.01×300 01 $300 - (0.93 \times 300)$	1111	100 / 500
= 5 (tickets)	A1	
	(6)	
9.		
58.5 – 1.8 × 12.5(0) (= 36)	M2	M1 for 1.8 × 12.5(0) (= 22.50)
26 + 2.2 = (6)(44.25)	A 4	Convincing compet final star
$36 \div 3.2 = (\pounds)11.25$ or $26 \div 11.25 = 2.2(m)$ or	A1	Convincing correct final step
36 ÷ 11.25 = 3.2(m) or 3.2 × 11.25 = (£)36		Dependent on M2
$5.2 \times 11.25 = (2.00)$		
Alternative method 1		<u> </u>
1.8 × 12.5(0) + 3.2 × 11.25	М2	M1 for either 1.8 × 12.5(0) (=22.50) or
		for 3.2 × 11.25 (= 36)
$36 + 22.5(0) = (\pounds)58.5(0)$	A1	Convincing correct final step
 	L	
Alternative method 2		
$1.8 \times 12.5 + 3.2y = 58.50$	M1	Allow other notation
3.2y = 58.50 - 22.5. or 3.2y = 36	M1	
(y) 36 ÷ 3.2 = (£) 11.25	A1	
(y) = 0 + 0.2 - (L) + 1.20		
	(3)	<u> </u>
	(0)	

200(%)	B1 (6)	
11.(c)		If no marks, award SC1 for a sight of (£)52.5(0) OR SC1 for a final answer of (£)1032.5(0)
875 × 0.06 × 3 oe £)157.5(0)	M1 A1	ISW
£) 5687.5 <u>(0)</u> 1.(b)	<u>A1</u>	May be seen in stages.
6500 – (12.5 × 6500) ÷ 100 or 6500 × (100 – 12.5) ÷ 100 oe	M2	M1 for $(12.5 \times 6500) \div 100$ oe or $(\pounds)812.5(0)$ If a partitioning method is used to find 12.5%, it must be a fully correct method.
11.(a)	(7)	
		Award M1 A1 M1 A1 for (£)904.8(0) (from trial(s) with an error) Award M1 SC1 M1 SC1 for (£)478.5(0) (from trial(s) with no error) Award M1 SC0 M1 SC1 for (£)478.5(0) (from trial(s) with an error)
(£)913.5(0)	A1	CAO If M1 A0 award SC1 for (£)478.5(0) (from 11 × 43.50)
Calculating the cost 21 × 43.5(0) =	М1	FT 'their t' for M1 only
DR 52.5 × 20 = 1250, 0R 62.5 × 21 = 1312.5		If M1 A0 award SC1 for t = 11 with no errors in relevant calculation(s) seen 125 × 10 = 1250, 125 × 11 = 1375
=21 from correct calculations in relevant rial(s) seen 125 × 20 = 2500, 125 × 21 = 2625,	A2	A1 if t = 21 but an error in the relevant calculation(s) seen
Jse of trial(s) of 125 × t OR 125 ÷ 2 × t where t > 8	М1	
Alternative method finding t, the number of ubs using trial(s)		Award M2 SC1 for (£)452.4(0) (from 10.4×43.50)
21 × 43.50 =) (£)913.5(0)		CAO Award M3 A1 for (£)904.8(0) (from 20.8 × 43.50) Award M2 SC2 for (£)478.5(0) (from 11 × 43.50)
300 × 2 ÷ 125 × 43.5(0)		Method marks may be awarded in any order (= 2600) (= 20.8)
10.(b)	B2	B1 for 4 or 5 correct Ignore inclusion of VC, SC and VS oe

2. (a)(i)	Barry 48	Samira		B2	B1 for one correct
Median	185	183			
12.(a)(ii) Samira because range is smaller		B1	FT their table Allow e.g 'Samira as her distances are less spread out (than Barry)' 'Samira as the numbers are closer together' Do not allow e.g 'Samira, her miles are more consistent'		
12.(b)(i) 3405 × 1	2 or 40	000 ÷ ′	12	M1	Accept 3400 × 12 Allow equivalent calculations using distance per day.
40 860 (>40 000) or 3333(.33) (< 3405)		A1	Accept 40 800 Allow 40 900 and 41 000 from correct working.		
12.(b)(ii) Relevant assumption e.g. 'She has assumed that the month was typical.' Or 'She has assumed that she will drive the same distance each month'		E1	Do not accept 'there are 12 months in a year'		
Correct effect of assumption e.g. 'If other months were busier, she would drive further.'		E1	Dependent on the assumption mark being awarded.		
		(7)	Allow both the assumption and explanation written here.		
or 1 × 1 >			1 × 2 × 10	B1	Accept any clear representation of correct dimensions
13.(b) Correct e Eg she need she has you need 144 ÷ 6 t	ds to ÷ done t d to squ	6 firsť hings in	the wrong order' t the area of a face'	B1	Do not allow e.g '÷ 6' '144 ÷ 6'
				(2)	

14.(a) 30 ÷ 1.6 18.75 (miles per second)	M1 A1	Do not ISW but award M1A0 if 30 ÷ 1.6 or 18.75 are seen with further incorrect work.
14.(b)(i) 1.6 × 1.6 or 1.6 ² 2.56 (km ²)	M1 A1	
14.(b)(ii) 512 million or 512 000 000	B2	FT their answer to (b)(i) and award: B2 for the correct evaluation of 200 000 000 × 'their 2.56' For example, with an answer of 4 in (i) award B2 for 800 000 000 or 800 million B1 for the correct evaluation of 20 000 000 × 'their 2.56' OR 2 000 000 000 × 'their 2.56' (a place value error of a power of 10 only)
	(6)	

		<u>.</u>			
15.					
4.8 ± 0.2	B1	May be implied by [230, 250] (miles)			
4.8 × 50 = (240)	M1	FT 'their 4.8'			
240 ÷ 5.75 or (240 ÷ 345) × 60	M2	FT 'their 240'			
		Allow M1 for 'their 240' ÷ 'time' where 'their time'			
		is an attempt at the time from 06:00 to 11:45			
		however expressed e.g 5.45			
41.7(39) to 42 (mph)	A1	FT provided the previous M2 awarded			
		Answers for use of 4.6 to 5(cm)			
		Length 4.6 4.7 4.8 4.9 5.0			
		Speed 40 40.86 41.73 42.60 43.47			
		Speed 40 40.00 41.75 42.00 43.47			
	(5)				
16 (a)					
16.(a)					
(100 ×) 44 ÷ 135	M1				
=0.325() or 0.326 or 0.33	A1				
OR 32.5() or 32.6 or 33 (%)					
A greater proportion of women than men	E1	Depends on M1 previously awarded.			
completed the survey.		FT their answer for appropriate statement			
		indicated or unambiguously implied			
	[If no marks award SC1 for sight of 48(men)			
Alternative method					
0.32 × 135	M1				
= 43.2(women)	A1				
= 45.2(women)	AI				
A greater proportion of women than men	E1	Depends on M1 previously awarded.			
completed the survey.		FT their answer for appropriate statement			
· · ·		indicated or unambiguously implied			
16.(b)	+	<u> </u>			
0.4 × 0.2 × 225 oe	MO	M1 for 225 × 0.4 or 90 OR 0.4 × 0.2 or 0.08 oe			
	M2				
18	A1	CAO			
	(6)				
17.					
Method of comparison e.g. per 25ml,	M1	Needs to show attempt to compare at least two of			
ml per penny or similar		the three			
Correctly evaluated calculations for at least	A1	Ignore incorrect units			
	AI				
two of the three sizes AND appropriate		3000 ml 25 ml 100 ml per p ml per £			
conclusion					
OR		200 ml £14.70 12.25p 49p 2.04 ml 204(.0) ml			
Correctly evaluated calculations that should		375 ml £14.40 12p 48p 2.08 ml 208(.3) ml			
enable comparison of all three.		500 ml £13.80 11.5p 46p 2.17 ml 217(.3) ml			
Correctly evaluated comparison of all three	A1	Consistent units that are not obviously incorrect			
sizes, may be different comparisons at		are required or allow no units given.			
different stages AND correct conclusion		Comparison of small/med and med/large is			
"large bottle is best value for money"		comparison of all three.			
		Comparison of small/med and small/large is not a			
	L	comparison of all three.			
	(3)				
18.(a)					
$366 \div (1+3) \times 3$	M1				
		If MO oward CO1 for eight of (0)04 5(0)			
(£)274.5(0)	A1	If M0 award SC1 for sight of (£)91.5(0)			
18.(b)					
3:5	B2	B1 for an answer of 6 : 10 oe			
		SC1 for an answer of 3 : 2, (from halving not			
		doubling and obtaining 6 : 4) or a final answer of			
	L	5:3			
	(4)				
	/				

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19.(a)		
-2, -1, 0, 1, 2 19.(b)	B2	B1 $-2 \le n < 3$ or $-2, -1, 0, 1, 2, 3$ or $-1, 0, 1, 2$ or $-4, -3, -2, -1, 0, 1, 2, 3, 4, 5$ or $-2 -1 1 2$
A straight line with an empty circle at 23 and a solid circle at 28. $20 \ 21 \ 22 \ 23 \ 24 \ 25 \ 26 \ 27 \ 28 \ 29$	B2	B1 for a line joining two circles in the correct position but incorrectly shaded. B1 for a correct circle at one end and a line going from it in the correct direction.
	(4)	
20*. (Interior angle of the heptagon =) 180 – 360 ÷ 7 OR (7 – 2) × 180 ÷ 7 OR (7 × 180 – 360) ÷ 7	M1	
$=128.6(^{\circ}) \text{ or } 128.57()(^{\circ})$ (Unique angle in triangle =) $(360 - 90 - 90 - 128.6 =) 51.4(28^{\circ})$	A1 B1	May be seen on diagram. FT 'their derived 128.6' May be seen on diagram.
Working to show that $x = 64.3$ to 1 d.p. (180 - 51.4(28)) ÷ 2 = 64.285 to 64.3	B1	CAO
Alternative method 1 working from 64.3 (Unique angle in triangle =) (180 - 64.3 - 64.3) = 51.4 (Interior angle of the heptagon =) (360 - 90 - 90 - 51.4) = 128.6 (Interior angle of the heptagon =) $180 - (360 \div 7)$ $OR (7 - 2) \times 180 \div 7$ $OR (7 \times 180 - 360) \div 7$ $= 128.6(^{\circ}) \text{ or } 128.57()(^{\circ})$	B1 B1 M1 A1	FT 'their 180 – 64.3 – 64.3' Only awarded if this is clearly the interior angle of the heptagon
Alternative method 1a for final 2 marks (Sum of the interior angles of a heptagon=) (7 – 2) × 180 o.e AND 128.6 × 7	М1	M0 for 'their 128.6 × 7' = 900(.2) alone
900	A1	Allow for 900 and 900.2
Alternative method 2 using exterior angles Exterior angle (of the heptagon) = 360 ÷ 7 = 51.4(28°)	М1 А1	Method must be seen
(Unique angle in triangle =) (360 – 90 – 90 – (180 - 51.4(28°))) = 51.4(28°)	B1	May be seen on diagram. FT 'their derived 51.4(28…)
Working to show that (x =) (180 – 51.4(28))÷ 2 = 64.3	B1	May be seen on diagram. CAO
	(4)	

21.7 (1 $-0.8(0)$) × 40 OR 40 $-0.8(0)$ × 40M2M1 for sight of one of the following: • $1 - 0.8(0)$ • $0.15 + 0.05$ × 40OR 0.15 + 0.65 × 40 OR 0.15 × 40 + 0.05 × 40 • $0.15 + 40 + 0.05$ × 408 • $0.15 + 40 + 0.05$ • $0.15 + 40 + 0.05$ 22.7 (h =) $\frac{500}{\pi \times 3.5^2} = 500/38.4(8)$ (h =) 12.98() to 13 (cm)M2 M1 for $500 = \pi \times 3.5^2 \times h$ CAO on the form incret working If no marks award SC1 for an answer of: 25.97 to 26(.0) from $500 = \frac{1}{2}\pi \times 3.5^2 \times h$ OR 38.96 to 39(.0) from $500 = \frac{1}{2}\pi \times 3.5^2 \times h$ OR 38.96 to 39(.0) from $500 = \frac{1}{2}\pi \times 3.5^2 \times h$ Alvy valid reason e.g. 10 years is too far ahead to predict.' The paper might not be produced if sales continue to fall' The paper might not be produced if sales continue to fall' The change each time is not consistent.'B1 If a satisfactory reason is given ignore further spurious comments. Allow e.g. Decause the sales may not follow the pattern of the graph.' There might be more or less than 10.000 sold in 2025' as no reference to the trend we can't tell' as no reference to time or trend(a)(i) (100 $\times) \frac{62(000)}{62(000)}$ OR (100 $\times) (1 - 0.42)$ M1 A1(a)(ii) (100 $\times) (1 - 0.419)$ or (100 $\times) (1 - 0.42)$ M1 A1(b) 52000000 + (16 + 9) $\times 16$ 33 280 000.M1 A1(b) 33 280 000.M1 A1			
(3) (3) (3) $(4) = \frac{500}{\pi \times 3.5^2} = 500/38.4(8)$ $(h =) 12.98() to 13 (cm)$ $(1 =) 12.98() to 13 (cm)$ (3) $(3$	OR 40 – 0.8(0) × 40 OR (0.15 + 0.05) × 40	M2	 1 - 0.8(0) 0.15 + 0.05 0.2(0) 0.8(0) × 40 32 0.15 × 40
22.* $(h =) \frac{500}{\pi \times 3.5^2} = 500/38.4(8)$ (h =) 12.98() to 13 (cm) (h =) 12.98() to 13 (c	8	A1	CAO
		(3)	
(h =) 12.98() to 13 (cm)M1 for 500 = $\pi \times 3.5^{\circ} \times h$ A1CAO not from incorrect working If no marks award SC1 for an answer of: 25.97 to 26(.0) from $500 = \frac{1}{2}\pi \times 3.5^{\circ} \times h$ C3.(a)(i)(3)A1(3)23.(a)(i)(3)Any valid reason e.g. '10 years is too far ahead to predict.' 'the paper might not be produced if sales continue to fall''14 change each time is not consistent.'B1B1If a satisfactory reason is given ignore further spurious comments.Allow e.g. 'because the sales may not follow the pattern of the graph.' 'there is not an equal; drop in numbers sold every 5 years' 'it's too far in the future, we can't tell' 'it could increase instead of decrease' 'more people may read the paper on the internet'(a)(ii) (100 \times) $(100 \times)(1 - 0.419)$ or (100 \times)(1 - 0.42)M1(a)(ii) (b) (200000 \times (10 \times)(1 - 0.419) or (100 \times)(1 - 0.42)M1(b) (52000000 \times (16 \pm 9) \times 16M1M1A1A1If no marks award SC1 for an answer of 41.9(3%), allow 42(%) from evaluation of 2600000 26000 \times 100 but not from trials.(b) (c) (c) (c)M1M1A1M1A1M1M1M1M1M2M1M3M2(a)(ii) (10 \times) (1 - 0.419) or (100 \times) (1 - 0.42)M3M1M3M1M4M1M4M1M4M1M4M1M4M1M4M1M4M1<	22.*		
(3)(3) $23.(a)(i)$ Any valid reason e.g. '10 years is too far ahead to predict.' 'the paper might not be produced if sales continue to fall' 'the change each time is not consistent.'B1If a satisfactory reason is given ignore further spurious comments. Allow e.g. 'because the sales may not follow the pattern of the graph.' 'there is not an equal; drop in numbers sold every 5 years' 'it's too far in the future, we can't tell' 'it could increase instead of decrease' 'more people may read the paper on the internet'(a)(ii) $(100 \times) \frac{62(000) - 26(000)}{62(000)}$ $OR (100 \times) (1 - 0.419)$ or $(100 \times)(1 - \frac{26(000)}{62(000)})$ M1(a)(iii) $(100 \times) (1 - 0.419)$ or $(100 \times)(1 - \frac{26(000)}{62(000)})$ M1(b) $52000000 + (16 + 9) \times 16$ $33 280 000$ M1			CAO not from incorrect working If no marks award SC1 for an answer of: 25.97 to 26(.0) from $500 = \frac{1}{2}\pi \times 3.5^2 \times h$
23.(a)(i) Any valid reason e.g. '10 years is too far ahead to predict.' 'the paper might not be produced if sales continue to fall' 'the change each time is not consistent.'B1If a satisfactory reason is given ignore further spurious comments.Allow e.g. 'because the sales may not follow the pattern of the graph.' 'there is not an equal; drop in numbers sold every 5 years' 'it's too far in the future, we can't tell' 'it's too far in the future and the paper on the internet' Do not allow statements that do not relate to the graph e.g. 'there might be more or less than 10000 sold in 2025' as no reference to the trend 'we can't tell' as no reference to time or trend(a)(ii) (100 ×) $\frac{62(000) - 26(000)}{62(000)}$ OR (100 ×) (1 - 0.419) or (100 ×) (1 - 0.42)M1fn o marks award SC1 for an answer of 41.9(3%), allow 42(%) from evaluation of 26000/62000 × 100 but not from trials.(b) 52000000 + (16 + 9) × 16 33 280 000M1		(2)	OR 38.96 to 39(.0) from $500 = \frac{1}{3}\pi \times 3.5^2 \times h$
'the paper might not be produced if sales continue to fall' 'the change each time is not consistent.'Allow e.g. 'because the sales may not follow the pattern of 	Any valid reason e.g.		
$ \begin{array}{c} \mbox{graph e.g.} \\ 'there might be more or less than 10 000 sold in 2025' as no reference to the trend 'we can't tell' as no reference to time or trend 'la 'us' as no reference to time or trend 'la 'la 'la 'la 'la 'la 'la 'la 'la 'la$	'the paper might not be produced if sales continue to fall'		Allow e.g. 'because the sales may not follow the pattern of the graph.' 'there is not an equal; drop in numbers sold every 5 years' 'it's too far in the future, we can't tell' 'it could increase instead of decrease'
$ \begin{array}{c cccc} (100 \times) & \frac{62(000) - 26(000)}{62(000)} \\ OR & (100 \times) 0.58() \text{ or } (100 \times) (1 - \frac{26(000)}{62(000)}) \\ OR & (100 \times) & (1 - 0.419) \text{ or } (100 \times) & (1 - 0.42) \\ 58(.06\%) & \text{ or } 58.1(\%) \\ (b) & & \\ 52000000 \div & (16 + 9) & \times 16 \\ 33 & 280 & 000 \end{array} $ A1 If no marks award SC1 for an answer of 41.9(3%), allow 42(%) from evaluation of 26000/62000 \times 100 but not from trials. \\ A1 & Allow a place value slip in 52 000 000 for M1 only A1 & Allow 33 000 000 and 33 300 000 \\ \end{array}			graph e.g. 'there might be more or less than 10000 sold in 2025' as no reference to the trend
OR (100 ×) (1 – 0.419) or (100 ×) (1 – 0.42) 58(.06%) or 58.1(%) A1 If no marks award SC1 for an answer of 41.9(3%), allow 42(%) from evaluation of 26000/62000 × 100 but not from trials. (b) 52000000 ÷ (16 + 9) × 16 M1 Allow a place value slip in 52 000 000 for M1 only A1	$(100 \times) \frac{62(000) - 26(000)}{62(000)}$	M1	
(b) 41.9(3%), allow 42(%) from evaluation of 26000/62000 × 100 but not from trials. (b) 52000000 ÷ (16 + 9) × 16 M1 Allow a place value slip in 52 000 000 for M1 only A1 33 280 000 Allow 33 000 000 and 33 300 000 Allow 33 000 000 and 33 300 000	OR (100 ×)0.58() or (100 ×)(1 - $\frac{26(000)}{62(000)}$) OR (100 ×) (1 - 0.419) or (100 ×) (1 - 0.42)		
52000000 ÷ (16 + 9) × 16 M1 Allow a place value slip in 52 000 000 for M1 only 33 280 000 A1 Allow 33 000 000 and 33 300 000		A1	41.9(3%), allow 42(%) from evaluation of
	52000000 ÷ (16 + 9) × 16	A1	

24.*		
5x + 40 = 6x + 20	M1	Allow for 5 × 20 + 40 = 6 × 20 + 20 which may be
	A 4	seen in stages
x = 20	A1	ET their 20' for possible M2 provided provided M1
5 × 20 + 40 + y + 35 = 180 OR 6 × 20 + 20 + y + 35 = 180 OR	M2	FT 'their 20' for possible M2 provided previous M1 awarded.
$5 \times 20 + 20 + 2(y + 35) = 160 \text{ OK}$ $5 \times 20 + 40 + 2(y + 35) + 6 \times 20 + 20 = 360$		May be seen in stages.
5 × 20 + 40 + 2(y + 55) + 0 × 20 + 20 = 500		May be seen in stages.
		M1 for a correct equation
		5x + 40 + y + 35 = 180
		or 6x + 20 + y + 35 = 180
		or 5x + 40 + y + 35 + 6x + 20 + y + 35 = 360
<i>y</i> = 5	A1	CAO
24.* Alternative method (using simultaneous		
equations)		
Writes two correct equations in x and y	М2	M1 for each correct equation
5x + 40 + y + 35 = 180		May be simplified
or 6x + 20 + y + 35 = 180		
$or \ 5x + 40 + y + 35 + 6x + 20 + y + 35 = 360$		
Mathematica climinate considerate a second		
Method to eliminate variable, e.g. equal coefficients and method to find second	<i>m</i> 1	Allow one error in one term but not with equal coefficients
variable		coemcients
Vallable		
Finds the value of the first variable	A1	CAO
		x = 20 OR y = 5
Second variable	A1	FT 'their first variable'
	(5)	
25.*	(0)	
Correct perpendicular bisector construction	B2	B1 for perpendicular bisector within tolerance
with appropriate arcs		$(\pm 2^{\circ})$ without arcs or with invalid arcs or for a
		correct pair of arcs that intersect twice.
Correct angle bisector construction of XOY	B2	B1 for angle bisector within tolerance
with appropriate arcs		$(\pm 2^{\circ})$ without arcs or with invalid arcs or for a
		correct pair of arcs
Correct point indicated	B1	FT provided at least B1, B1 awarded; may be
	(5)	implied by intersecting loci
26.*(a)	(5)	
$(x^2 =) 11.3^2 - 8.6^2$	M1	
$x^2 = 53.73$ or $(x =) \sqrt{53.73}$	A1	
(x =) 7.3(3 cm)	A1	FT from M1 for the correctly evaluated square root
× / × /		of 'their 53.73' provided x < 11.3
		If no marks, award SC2 for an answer of $7.2(2 - am)$ again from use of $8.6^2 - 11.2^2$
(b)	 	7.3(3cm) seen from use of 8.6 ² – 11.3 ²
(b) $\cos(y) = 8.6 \div 13.5$	M1	Accept any equivalent full method
$(y =) \cos^{-1}(8.6 \div 13.5)$	m1	
$(y =) = 0 (A \otimes)$	A1	
(y =) 50(.4)	(6)	<u> </u>
	(0)	

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