OXFORD

INTERNATIONAL
AQA EXAMINATIONS

INTERNATIONAL GCSE
MATHEMATICS CORE
9260/2C

Paper 2C

Mark scheme

June 2019

Version: 1.0 Final

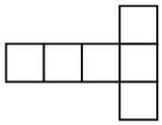
Mark schemes are prepared by the Lead Assessment Writer and considered, together with the relevant questions, by a panel of subject teachers. This mark scheme includes any amendments made at the standardisation events which all associates participate in and is the scheme which was used by them in this examination. The standardisation process ensures that the mark scheme covers the students' responses to questions and that every associate understands and applies it in the same correct way. As preparation for standardisation each associate analyses a number of students' scripts. Alternative answers not already covered by the mark scheme are discussed and legislated for. If, after the standardisation process, associates encounter unusual answers which have not been raised they are required to refer these to the Lead Assessment Examiner.

It must be stressed that a mark scheme is a working document, in many cases further developed and expanded on the basis of students' reactions to a particular paper. Assumptions about future mark schemes on the basis of one year's document should be avoided; whilst the guiding principles of assessment remain constant, details will change, depending on the content of a particular examination paper.

Further copies of this mark scheme are available from oxfordaqa.org.uk

Key to mark types and abbreviations

M	Method marks are awarded for a correct method which could lead to a correct answer.
A	Accuracy marks are awarded when following on from a correct method. It is not necessary to always see the method. This can be implied.
B	Marks awarded independent of method.
ft	Follow through marks. Marks awarded for correct working following a mistake in an earlier step.
SC	Special case. Marks awarded for a common misinterpretation which has some mathematical worth.
M dep	A method mark dependent on a previous method mark being awarded.
B dep	A mark that can only be awarded if a previous independent mark has been awarded.
oe	Or equivalent. Accept answers that are equivalent. eg accept 0.5 as well as $\frac{1}{2}$
[a, b]	Accept values between a and b inclusive.
[a, b)	Accept values $a \leq$ value $< b$
3.14 …	Accept answers which begin 3.14 eg 3.14, 3.142, 3.1416
Use of brackets	It is not necessary to see the bracketed work to award the marks.

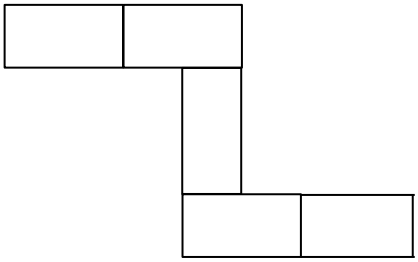
Q	Answer	Mark	Comments
1	reflex	B1	
2	$7a - 3$	B1	
3	12	B1	
4		B1	

5	**Alternative method 1**		
	× 2 in first box and + 1 in second box and y in Output	B2	B1 any two correct accept $y = 2x + 1$ in Output
	Alternative method 2		
	$+\frac{1}{2}$ or + 0.5 in first box and × 2 in second box and y in Output	B2	B1 any two correct accept $y = 2x + 1$ in Output
	Additional Guidance		
	Do not accept just $2x + 1$ in Output		
	Accept $= y$ in Output		
	Condone 2 × in place of × 2		

Q	Answer	Mark	Comments
6	**Alternative method 1**		
	7 ÷ 0.5 or 14	M1	
	their 14 × 54 or their 14 × 0.54	M1dep	oe
	7.56 or 756 or 2.44 or 244	A1	
	$2.44 or 244 cents	B1ft	ft 10 – their cost in $ or 1000 – their cost in cents must see units
	Alternative method 2		
	54 × 2 or 108	M1	
	their 108 × 7	M1dep	oe
	7.56 or 756 or 2.44 or 244	A1	
	$2.44 or 244 cents	B1ft	ft 10 – their cost in $ or 1000 – their cost in cents must see units

Q	Answer	Mark	Comments
7	–2 and –3 and Ali	B2	B1 –2 linked to Ali or –3 linked to Bob
	Additional Guidance		
	The –2 must not be linked to Bob, the –3 must not be linked Ali		
8	**Alternative method 1**		
	180 – 106 or 74	M1	may be seen on diagram
	360 – 297 or 63	M1	may be seen on diagram
	43	A1	
	Alternative method 2		
	360 – 297 or 63	M1	may be seen on diagram
	106 – their 63	M1dep	
	43	A1	

Q	Answer	Mark	Comments
9	**Alternative method 1**		
	25 × 18 or 450	M1	oe
	$\frac{1}{5}$ × their 450 or 90	$\left(1-\frac{1}{5}\right)$ × their 450 or $\frac{4}{5}$ × their 450 or 360	M1dep	oe
	(their 450 – their 90) × 14.75	their 360 × 14.75	M1dep	
	5310	A1	
	Alternative method 2		
	25 × 18 or 450	M1	oe
	their 450 × 14.75 or 6637.5(0)	M1dep	
	$\left(1-\frac{1}{5}\right)$ × their 6637.5(0) or $\frac{4}{5}$ × their 6637.5(0)	M1dep	oe
	5310	A1	
	Additional Guidance		
	Alt 1 20% × 450 not evaluated		M1M0

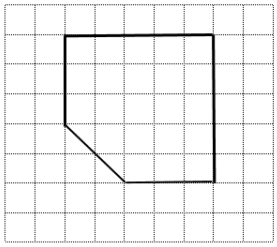
Q	Answer	Mark	Comments
10(a)		B1	mark intention
	Additional Guidance		
	Condone non ruled lines		
	Any added shading must still have correct rotational symmetry		

10(b)	17 ÷ 2 or 8.5 or 144.5	M1	oe
	4 × 17 × their 8.5	M1	oe their 8.5 must not be 17
	578	A1	
	Additional Guidance		
	8 cm, 4 × 17 × 8 = 544		M0M1A0

11(a)		B2	B1 at least 6 correct

	5	**10**	**12**	**15**
5	25	50	60	75
10	50	100	120	150
12	60	120	144	180
15	75	150	180	225

11(b)	$\frac{15}{16}$ or 0.9375 or 93.75%	B2ft	ft their table in (a) for up to 2 marks B1 fraction with denominator 16 or B1ft fraction with numerator their 15

Q	Answer	Mark	Comments
12		B2	B1 pentagon with 3 right angles

13(a)	4	B1	
	Additional Guidance		
	(5, 4)		B1
	(4, 5)		B0

13(b)	Any two of (1, 3) (3, 4) (6, 1) with no incorrect points	B2	B1 Any one of (1, 3) (3, 4) (6, 1) with at most one incorrect point
	Additional Guidance		
	(1, 3) (3, 4) (6, 1) with no incorrect points		B2

14(a)	$\frac{3}{5}$	B2	B1 correct probability not as a simplified fraction eg $\frac{30}{50}$ or 60% or 0.6 or 30
	Additional Guidance		
	30 cannot be a denominator		

14(b)	0.26	B2	B1 correct probability not as a decimal eg $\frac{13}{50}$ or 26% or 13
	Additional Guidance		
	13 cannot be a denominator		

Q	Answer	Mark	Comments
15	**Alternative method 1**		
	50 + 20 + 10 or 80	M1	50n + 20n + 10n or 80n
	1200 ÷ their 80 or 15	M1dep	n = 1200 ÷ their 80 or 15
	13	A1	SC2 ($)650
	Alternative method 2		
	Finds a correct total value for the same number of notes	M1	eg 50 × 2 + 20 × 2 + 10 × 2 = 160
	50 × 15 + 20 × 15 + 10 × 15 = 1200	M1dep	
	13	A1	SC2 ($)650
	Alternative method 3		
	50 ÷ 80 × 1200 or 750	M1	oe
	their 750 ÷ 50 or 15 or (their 750 – 100) ÷ 50	M1dep	
	13	A1	SC2 ($)650
	Additional Guidance		
	50 × 15 + 20 × 15 + 10 × 15 = 1200 with no other trial seen		M1M1
	Any letter can be used in the algebraic version of Alt 1		
16	7.67	B2	B1 for $7.\dot{6}$ or 7.666(…) or 7.667

Q	Answer	Mark	Comments
17	$\frac{1}{2} \times h \times 8 = 28$ or $28 \div 8 \times 2$ or $28 \div 8 \div \frac{1}{2}$	M1	oe
	7	A1	
18	$2p = -20 \times 5$ or $2p = -100$ or $\frac{p}{5} = -20 \div 2$ or $\frac{p}{5} = -10$ or $(p =) -20 \div 0.4$	M1	oe
	–50	A1	
19(a)	$\frac{12}{20} \times 100$	M1	oe
	60	A1	
19(b)	$\frac{5}{7} \times (20 + 15)$ or 25	M1	oe eg $\frac{25}{35}$
	13	A1	

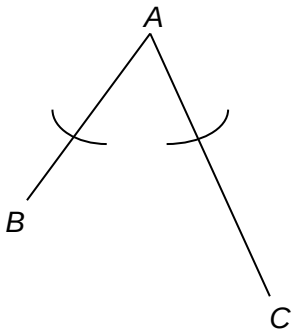
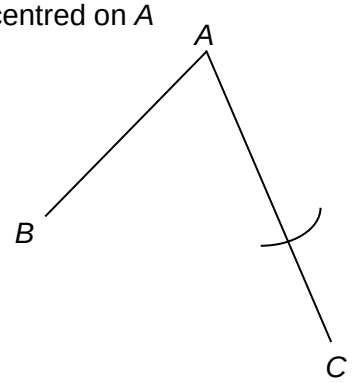
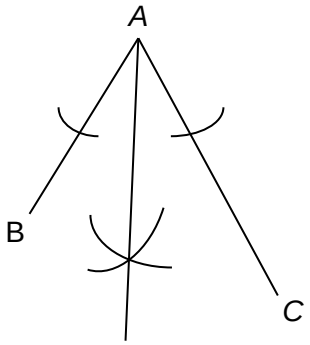
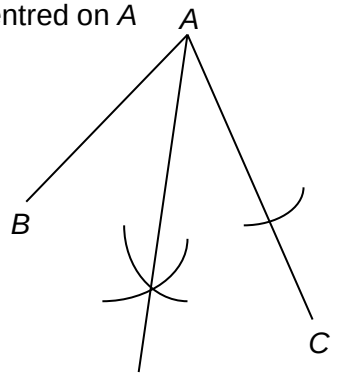
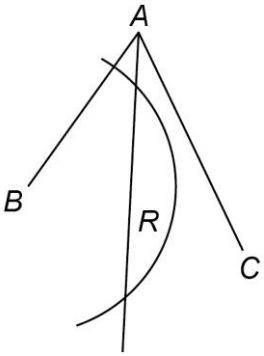
Q	Answer	Mark	Comments
20	**Alternative method 1**		
	$\frac{90}{360} \times 180$ or 45	M1	oe
	$\frac{40}{360} \times 180$ or 20	M1	oe
	25	A1	
	Alternative method 2		
	90 – 40 or 50	M1	oe
	$\frac{\text{their } 50}{360} \times 180$	M1dep	oe
	25	A1	
21	$b - 10 = \frac{a}{4}$ or $4b = a + 40$ or $4b - 40$ or $4(b - 10)$	M1	a correct first step in rearranging or the correct rearrangement without $a =$
	$a = 4b - 40$ or $a = 4(b - 10)$	A1	accept $4b - 40 = a$ or $4(b - 10) = a$
	Additional Guidance		
	Accept $-40 + 4b$ for $4b - 40$ throughout		
	$a = 4b - 40$ in working with answer $4b - 40$		M1A1
	$a = (b - 10)4$ (unless recovered)		M1A0
	$a = b4 - 40$ (unless recovered)		M1A0
	Multiplication signs are acceptable for M1 but not A1		

Q	Answer	Mark	Comments
22(a)	**Alternative method 1**		
	$3x + 6$	M1	
	(their $3x$) + $2x = 1 –$ (their 6) or $5x = –5$	M1	correctly collecting their terms oe
	$–1$	A1ft	oe ft M0M1 or M1M0 for any equation of the form $5x = a$ or of the form $bx = –5$, $b \neq 1$
	Alternative method 2		
	$\frac{1}{3} – \frac{2}{3}x$	M1	
	x + their $\frac{2}{3}x$ = their $\frac{1}{3} – 2$ or $\frac{5}{3}x = -\frac{5}{3}$	M1	correctly collecting their terms oe
	$–1$	A1ft	ft M0M1 or M1M0 for any equation of the form $\frac{5}{3}x = a$ or of the form $bx = -\frac{5}{3}$, $b \neq 1$
	Additional Guidance		
	$3x + 2 = 1 – 2x$ $5x = –1$ $x = –0.2$ oe		M0 M1 A1ft
	$3x + 6 = 1 – 2x$ $5x = 7$ $x = 1.4$ oe		M1 M0 A1ft
	$3x + 6 = 1 – 2x$ $3x – 2x = 1 + 6$ $x = 7$		M1 M0 A0ft

Q	Answer	Mark	Comments
22(b)	$3t(t-2)$	B2	B1 $3(t^2-2t)$ or $t(3t-6)$
22(c)	h^{-3} or $\frac{1}{h^3}$	B1	
23	120°	B1	
24	$27x^6$	B1	
25	$(x+3)^2=0$	B1	
26	**Alternative method 1**		
	55 – 40 or 15	M1	
	$\frac{\text{their } 15}{40}(\times 100)$ or 0.375 (× 100)	M1dep	
	37.5	A1	
	Alternative method 2		
	$\frac{55}{40}$ (×100) or 137.5 or 1.375	M1	
	their 1.375 – 1 or their (1.375 – 1) × 100 or 0.375 (× 100) or their 137.5 – 100	M1dep	
	37.5	A1	

Q	Answer	Mark	Comments
27	(x =) 42	B1	
	8 ÷ 20 or 0.4 or $\frac{2}{5}$ or 20 ÷ 8 or 2.5 or $\frac{5}{2}$ or 25 ÷ 20 or 1.25 or $\frac{5}{4}$ or 20 ÷ 25 or 0.8 or $\frac{4}{5}$ or 25 × 8 ÷ 20	M1	oe
	(y =) 10	A1	
	Additional Guidance		
	Angle only of 105 implies correct scale factor		B0M1A0

Q	Answer	Mark	Comments
28(a)	$3n - 13$	B1	
28(b)	**Alternative method 1**		
	a and a + 8 or b and b – 8	M1	may choose any letter
	a + a + 8 = 130 or b + b – 8 = 130	M1dep	oe equation
	61 and 69	A1	
	Alternative method 2		
	130 – 8 or 122 or 130 + 8 or 138	M1	
	their 122 ÷ 2 or 61 or their 138 ÷ 2 or 69	M1dep	
	61 and 69	A1	
	Alternative method 3		
	$8n + 5 + 8(n + 1) + 5 = 130$ or $16n + 18 = 130$	M1	oe
	$n = 7$ and $8 \times 7 + 5$ or 61 or $n = 7$ and $n = 8$	M1dep	
	61 and 69	A1	
	Additional Guidance		
	Accept numbers in either order		

Q	Answer	Mark	Comments
29	Two arcs with the same radius, centred on *A* intersecting *AB* and *AC* 	M1	tolerance $\pm$ 2 mm may be seen as one arc on *AC* of radius *AB* centred on *A* 
	Construction with all arcs shown in tolerance 	A1	tolerance $\pm$ 2 mm may be seen as one arc on *AC* of radius *AB* centred on *A* 
	Construct arc, centre *B*, radius 4 cm	B1	tolerance $\pm$ 2 mm
	Correct region with label 	B1ft	angle bisector must be a straight line coming from A arc must be centred on B accept unambiguous indication of their closed region eg shading

Q	Answer	Mark	Comments
30(a)	$6 \leqslant h < 8$	B1	accept any unambiguous indication eg 6 to 8 or 6 – 8
	Additional Guidance		
	A single value answer eg 6.(…) or 7 or 7.(…)		B0
30(b)	7500 ÷ 250 or 30 or 0.08 (× 7500) or $\frac{20}{250}(\times 7500)$ or $\frac{250}{7500} = \frac{20}{x}$	M1	oe implied by 8%
	600	A1	