Pearson

Mark Scheme

Specimen Paper

Pearson Edexcel International GCSE
In Mathematics A (4MA1) Paper 2F

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Specimen Paper
Publications Code 4MA1_2F_EAM_MS

General Marking Guidance

- All candidates must receive the same treatment. Examiners must mark the first candidate in exactly the same way as they mark the last.
- Mark schemes should be applied positively. Candidates must be rewarded for what they have shown they can do rather than penalised for omissions.
- Examiners should mark according to the mark scheme not according to their perception of where the grade boundaries may lie.
- There is no ceiling on achievement. All marks on the mark scheme should be used appropriately.
- All the marks on the mark scheme are designed to be awarded. Examiners should always award full marks if deserved, i.e. if the answer matches the mark scheme. Examiners should also be prepared to award zero marks if the candidate's response is not worthy of credit according to the mark scheme.
- Where some judgement is required, mark schemes will provide the principles by which marks will be awarded and exemplification may be limited.
- When examiners are in doubt regarding the application of the mark scheme to a candidate's response, the team leader must be consulted.
- Crossed out work should be marked UNLESS the candidate has replaced it with an alternative response.
- **Types of mark**
    - M marks: method marks
    - A marks: accuracy marks
    - B marks: unconditional accuracy marks (independent of M marks)
- **Abbreviations**
    - cao – correct answer only
    - ft – follow through
    - isw – ignore subsequent working
    - SC - special case
    - oe – or equivalent (and appropriate)
    - dep – dependent
    - indep – independent
    - eeoo – each error or omission

- **No working**
  If no working is shown then correct answers normally score full marks
  If no working is shown then incorrect (even though nearly correct) answers score no marks.
- **With working**
  If there is a wrong answer indicated on the answer line always check the working in the body of the script (and on any diagrams), and award any marks appropriate from the mark scheme.
  If it is clear from the working that the "correct" answer has been obtained from incorrect working, award 0 marks.
  Any case of suspected misread loses A (and B) marks on that part, but can gain the M marks.
  If working is crossed out and still legible, then it should be given any appropriate marks, as long as it has not been replaced by alternative work.
  If there is a choice of methods shown, then no marks should be awarded, unless the answer on the answer line makes clear the method that has been used.
  If there is no answer on the answer line then check the working for an obvious answer.
- **Ignoring subsequent work**
  It is appropriate to ignore subsequent work when the additional work does not change the answer in a way that is inappropriate for the question: eg. Incorrect cancelling of a fraction that would otherwise be correct.
  It is not appropriate to ignore subsequent work when the additional work essentially makes the answer incorrect eg algebra.
  Transcription errors occur when candidates present a correct answer in working, and write it incorrectly on the answer line; mark the correct answer.
- **Parts of questions**
  Unless allowed by the mark scheme, the marks allocated to one part of the question CANNOT be awarded in another.

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International GCSE Mathematics A
4MA1/2F

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International GCSE Maths					
Apart from question 21 & 22 (where the mark scheme states otherwise) the correct answer, unless clearly obtained from an incorrect method, should be taken to imply a correct method.					
Q		**Working**	**Answer**	**Mark**	**Notes**
1	(a)		20	1	B1
	(b)		6	1	B1
	(c)		9	1	B1
	(d)		17	1	B1
					Total 4 marks

2	(a)		December	1	B1
	(b)		21	1	B1 Accept −21
	(c)		−11	1	B1
					Total 3 marks

3	(a)		45	1	B1
	(b)		Thailand	1	B1
	(c)		60-62	1	B1 Allow any value in range
	(d)		Correct bar	1	B1 Bar of height 35
	(e)	$\frac{155}{205}\times 100$ oe	75.6	2	M1 A correct method to find 155 as a percentage of 205 A1
					Total 6 marks

4	(a)		$(2, -1)$	1	B1	
	(b)		parallelogram	1	B1	
	(c)		*DC* and *AB* marked or *AD* and *BC* marked	1	B1	A correct pair of parallel sides
	(d)		*BCD* or *BAD* marked T	1	B1	Correct angle marked and no other angle marked
						Total 4 marks

5	(a)		20	1	B1	20 or 2 tens or twenty or tens
	(b)		2000	1	B1	
	(c)	$4725 - 2875$	1850	2	M1 A1	
	(d)	$\frac{5}{8} \times 14$ oe	8.75	2	M1 A1	A correct method to convert kilometres to miles
						Total 6 marks

6	20 – (3.20 + 4.25) (=12.55) or 20 – (7.25) (=12.75) or 20 – (3.20 + 4.25 + 7.25) (=5.30)		3	M1	
	"5.30" ÷ 2			M1	A complete method to find the cost of 1 bar of chocolate
		2.65		A1	
					Total 3 marks

7	(a)		34	1	B1
	(b)	$(124\times 2+7)\div 5$	51	2	M1 For sight of 248 or 255 or two out of ×2, +7, ÷5 seen A1
	(c)		$T=\frac{5p-7}{2}$	2	M1 $\frac{5p-7}{2}$ oe A1 oe
					Total 5 marks

8	(a)		**1**	**2**	**3**	Correctly completed table	2	M1 3 -7 correct entries A1 All 8 entries correct
		2	3	***4***	***5***			
		4	***5***	6	***7***			
		6	***7***	8	9			
		8	***9***	***10***	***11***			
	(b)(i)					$\frac{1}{12}$	1	B1oe ft from fully completed table (0.083(33..))
	(ii)					$\frac{5}{12}$	1	B1oe ft from fully completed table (0.416(66...))
								Total 4 marks

9 (a)	Eg 0.6, 0.613, 0.625, 0.636...,0.66..., $\frac{7}{11} = 0.636...$ $\frac{5}{8} = 0.625$ $\frac{2}{3} = 0.666..$	60%, 0.613, $\frac{5}{8}$, $\frac{7}{11}$, $\frac{2}{3}$	3	B3	Accept correct decimal.percentage equivalents in ascending order. If not B3 then award B2 for: • 4 numbers in the correct order or • $\frac{7}{11}$ and $\frac{2}{3}$ and $\frac{5}{8}$ correctly converted to decimals or %'s (at least 2 SF rounded or truncated) or • all five numbers in correct descending order. If not B2 then B1 for • 3 numbers in the correct order 2 vulgar fractions correctly converted to decimals or %'s (at least 2 SF rounded or truncated)
(b)		5.6	1	B1	
(c)		16.81	1	B1	
(d)(i)		0.92496(37341..)	2	M1 A1	For 3.302..... or 3.57
(ii)		0.925	1	B1	ft if at least 4sf
					Total 8 marks

10		Translation $\begin{pmatrix}-1\\-5\end{pmatrix}$	2	B1 B1 Description in words, 1 left & 5 down is B0
				Total 2 marks

11	(a)		$6\frac{2}{9}$	1	B1
	(b)	$\frac{2}{3}\times\frac{2}{1}=\frac{4}{3}$ *or* $\frac{4}{6}\div\frac{3}{6}=\frac{4}{3}$	show	1	B1 Correct method seen
	(c)	$\frac{14a}{20a}-\frac{5a}{20a}$	show	2	M1 Correct fractions with a common denominator a multiple of 20 A1
					Total 4 marks

12	e.g. $x + x - 8 + x + x - 8 = 54$ or $w + w + w + w + 16 = 54$ or $\frac{54}{2}$ e.g. $70 \div 4$ or $38 \div 4$ or $\left(\left(\frac{54}{2}\right) \div 2\right) - 4$ or $\left(\left(\frac{54}{2}\right) \div 2\right) + 4$ length = 17.5, width = 9.5 "17.5" × "9.5"	166.25	4	M1 M1 M1 A1	A correct first stage to find the length or width of the rectangle For a fully correct method to find the length or width or for a correct length or width For a completely correct method to find the area of the rectangle
					Total 4 marks

13	(a)	$2x = 18 + 3$ or $x - \frac{3}{2} = \frac{18}{2}$ oe	10.5	2	M1 A1	For a correct first stage to solve the equation
	(b)		$2y + 16$	2	B2	Fully correct or B1 for one term correct
	(c)		t^{15}	1	B1	
	(d)		$12e^{9}f^{2}$	2	B2	B1 for 2 correct parts
	(e)	$5q \geq 31$ or $2q + 3q \geq 31$	$q \geq 6.2$	2	M1 A1	For $5q \geq 31$ or $2q + 3q \geq 31$ or $5q = 31$ or $q = 6.2$ for $q \leq 6.2$ or an answer of 6.2 following $q \geq 6.2$ in working Oe ($q > 6.2$ is M1 only)
	(f)		−2, −1, 0, 1, 2	2	B2	B1 for 4 correct and none incorrect or all correct with one addition.
						Total 11 marks

14	6.20 ÷ 4 (=1.55) oe (11.60 – 6.20 ÷ 4) ÷ 3	3.35	3	M1 M1 A1	Correct method to find the cost of 500g of grapes Fully correct method to find the cost of 1 kg of plums
					Total 3 marks

15	$\pi \times 8.5^2$ (=226.98...) (area of trapezium =) (20 + 25) ÷ 2 × h oe (=22.5h) $\pi \times 8.5^2 \div 22.5$	10.1	4	M1 M1 M1 A1	A correct method to find the area of the circle Use of correct formula for trapezium A correct method to find h (10.08 – 10.1)
					Total 4 marks

16	1 – (0.26 + 0.3) (=0.44) "0.44" ÷ 2	0.22	3	M1 M1 A1	
	91 ÷ 0.26 (=350) or (0.3 ÷ 0.26) × 91 (=105)) (91 + 0.3 × "350") ÷ 4 [(91 + "105") ÷ 4] oe	49	3	M1 M1 A1	A correct method to find total number of bricks or number of blue bricks A correct method to find number of layers
					Total 6 marks

17	(a)		$4n + 3$	2	B2	B1 for $4n + x$ where x is any integer
	(b)		78, 76, 74	2	B2	B1 for one correct term
	(c)		Correct reason	1	B1	The first sequence is only odd numbers and the second is only even numbers
						Total 5 marks

18	Eg $\frac{4}{100}\times 18000$ oe or 720	OR 18000×1.04^3		3	M1	for eg $\frac{4}{100}\times 18000$ oe or 720	OR M2 for 18000×1.04^3 (M1 for 18000 × 1.04 or 18720 or 18000 × 1.04^2 or 19468.8 or18000 × 1.04^4 or 21057.45..)
	$\frac{4}{100}\times$ (18000+'720') = 748.80 $\frac{4}{100}\times$ (18000+'720'+'748.80') = 778.75				M1	for completing method	
						Accept 1 + 0.04 as equivalent to 1.04 throughout	
						SC: If no other marks gained, award M1 for 18000 × 1.12 oe or 20160 OR or 2160	
			2248		A1	Answers in range 2247 – 2248	
						Total 3 marks	

19	$\tan x = \frac{8}{12}$ or $\sin x = \frac{8}{\sqrt{208}}$ or $\cos x = \frac{12}{\sqrt{208}}$ $x = \tan^{-1}\left(\frac{8}{12}\right)$ or $\sin^{-1}\left(\frac{8}{\sqrt{208}}\right)$ or $\cos^{-1}\left(\frac{12}{\sqrt{208}}\right)$	33.7	3	M1 A correct trig ratio for angle x M1 A complete method to find angle x A1 Accept answers rounding to 33.7
				Total 3 marks

20	(x =) 360 – (90 + 90 + 52)	128 Correct reasons	4	M1 A1 B1 The angle between a tangent and a radius is 90° oe B1 Angles in a quadrilateral add up to 360° oe
				Total 4 marks

21	Eg $14x = -7$, $14y = 77$, $6x + 4(3 - 5x) = 19$	$x = -0.5$, $y = 5.5$	3	M1 M1 A1	For correctly eliminating 1 variable One value correct dep on M1 Both values dep on M1
					Total 3 marks

22	360 ÷ 8 (=45) 360 ÷ 5 (=72)_ 72° − 45° (=27°) 180 – 2 × 27	126	5	M1 M1 M1 M1 A1	Method to find exterior angle of the octagon Method to find exterior angle of the pentagon Method to find *CAB* or *CBA* Fully correct method to find angle *y* Dep on at least M2
	Alternative				
	360 ÷ 8 (=45) 180 – 45 (=135) 360 ÷ 5 (=72) 180 – 72 (=108) 135° − 108° (=27°) 180 – 2 × 27	126	5	M1 M1 M1 M1 A1	Method to find interior angle of the octagon Method to find interior angle of the pentagon Method to find *CAB* or *CBA* Fully correct method to find angle *y* Dep on at least M2
					Total 5 marks

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