Mark Scheme (Results)

November 2020

Pearson Edexcel International GCSE
Mathematics A (4MA1)
Paper 1FR

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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
  - awrt – answer which rounds to
  - 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.
  If a candidate misreads a number from the question. Eg. Uses 252 instead of 255; method marks may be awarded provided the question has not been simplified. Examiners should send any instance of a suspected misread to review. If there is a choice of methods shown, mark the method that leads to the answer on the answer line; where no answer is given on the answer line, award the lowest mark from the methods shown.
  If there is no answer on the answer line then check the working for an obvious answer.

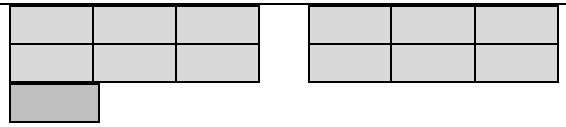
- **Ignoring subsequent work**

  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 to another.

International GCSE Maths A June 2020 – Paper 1FR Mark scheme				
Apart from Questions 10, 13, 16b, 17, 19c, where the mark scheme states otherwise, the correct answer, unless clearly obtained by an incorrect method, should be taken to imply a correct method.				
Q	**Working**	**Answer**	**Mark**	**Notes**
1 (a)		3 squares shaded	1	B1
(b)		$3\frac{4}{5}$	1	B1 oe for an equivalent mixed number
(c)		$\frac{4}{11}$	1	B1 oe
(d)		$\frac{14}{18}$	1	B1 for any fraction equivalent to $\frac{7}{9}$
(e)		$\frac{3}{100}$	1	B1 oe
				Total 5 marks

2	(a)		40	1	B1
	(b)	e.g. 9 × 4 or 68 – 32 oe		2	M1 May be seen by side of pictogram.
			36		A1
	(c)		2 rectangles of 6 sections and 1 small section	1	B1 oe
					Total 4 marks

3	(a)		**A** and **D**	1	B1	
	(b)		Correctly enlarged shape	2	B2	A correctly drawn shape (B1 for a shape with 3 sides correctly enlarged)
	(c)		hexagon	1	B1	Condone incorrect spelling if meaning is unambiguous
						Total 4 marks

4	(a)		evens	1	B1	
	(b)		Cross at 0	1	B1	
	(c)		Cross at the 2nd mark along	1	B1	ie the mark before ½
	(d)		Cross at the 4th mark along	1	B1	ie the mark after ½
						Total 4 marks

5	(a)		$3w$	1	B1	
	(b)		$8a$	1	B1	
	(c)		f^5	1	B1	
	(d)		$9c - 2h$	2	B2	(B1 for one correct term)
	(e)		$5(2d + 3)$	1	B1	
	(f)	$e - g = 7t$ or $\frac{e}{7} = t + \frac{g}{7}$ oe		2	M1	
			$t = \frac{e-g}{7}$		A1	oe e.g. $(e - g) \div 7$
						Total 8 marks

6	$30 \div 3.05$ (= 9.8...)		3	M1	oe, e.g. adding 9 lots of 3.05
	$30 - 9 \times 3.05$ oe			M1	
		2.55		A1	oe
					Total 3 marks

7	(a)	e.g. (8.3 – 3.2) ÷ 3		2	M1	for a complete method
			1.7		A1	
	(b)	9.45 ÷ 7		2	M1	
			1.35		A1	
						Total 4 marks

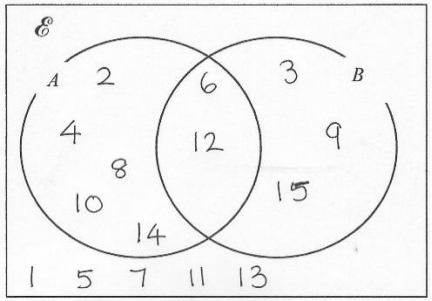
8	(a)					3	B3	for all 6 entries correct
							(B2	for 4 or 5 correct entries)
							(B1	for 2 or 3 correct entries)
	(b)				$\frac{15}{80}$	1	B1	oe e.g. $\frac{3}{16}$, 0.1875, 18.75%
								Total 4 marks

bus	**train**	**plane**	**total**
men	***12***	15	***53***	80
women	17	***28***	***25***	***70***
total	29	43	***78***	150

9	4 × 4 × 4 (= 64) **or** 60 × 48 × 40 (= 115 200) **OR** 60 ÷ 4 (= 15), 48 ÷ 4 (= 12), 40 ÷ 4 (+ 10) oe		3	M1	for finding the volume of either the cube **or** carton **OR** finding the number of cartons that fit along each edge of the box
	"115 200" ÷ "64" **or** "15" × "12" × "10"			M1	for a complete method
		1800		A1	
					Total 3 marks

10	e.g. 4×6 (= 24)		4	M1	for finding the perimeter of square
	e.g. ("24" – 6) ÷ 2 (= 9)			M1	for finding the length of the longest side in the triangle
	e.g. $18 \times 3 + 6$ or "9" $\times 6 + 6$			M1	oe, allow their length of the longest side in the triangle as long as clearly stated or identified (could be on diagram)
		60		A1	dep on M2
					Total 4 marks

11	x −1 0 1 2 3 4 y −5 −2 1 4 7 10	3	3		B3 for a correct line between −1 and 4 B2 for a correct straight line segment through at least 3 of (−1, −5)(0, −2)(1, 1) (2, 4)(3, 7)(4, 10) **OR** for all of (−1, −5)(0, −2)(1, 1)(2, 4) (3, 7)(4, 10) plotted but not joined B1 for at least 2 correct points plotted or stated (ignore incorrect points) **OR** for a line drawn with a positive gradient through (0, −2) and clear intention to use a gradient of 3 **OR** a line drawn with a gradient of 3
					Total 3 marks

12			3	B3 for all entries correct (B2 for 3 sections of the Venn diagram correct) (B1 for 2 sections of the Venn diagram correct)	
					Total 3 marks

13	0.32×450 (= 144) oe **or** $\frac{2}{5} \times 375$ (= 150) oe		3	M1
	0.32×450 (= 144) oe **and** $\frac{2}{5} \times 375$ (= 150) oe			M1
		144 **and** 150 **and** $\frac{2}{5}$ of 375		A1
				Total 3 marks

14	2, 2, 5 and 5, 7 or seen on a ladder or at the end of branches **OR** for at least 3 multiples of both 20 and 35 e.g. 20, 40, 60, ... and 35, 70, 105, ...		2	M1
		140		A1 allow $2 \times 2 \times 5 \times 7$ oe
				Total 2 marks

15	$\pi \times 15^2$ ($= 225\pi$)		2	M1
		707		A1 awrt 707
				Total 2 marks

16 (a)		47	1	B1 Answer in range 46.5 – 47.5
(b)	A correct method to convert either dirham to euros **or** euros to dirham e.g. 400 Dirham = 2 × 200 Dirham = 2 × "47" (= 94) euros **or** 90 euros = 30 + 60 = 127.5 +255 = 382.5 Dirham		2	M1
		France with correct calculations		A1
				Total 3 marks

17	e.g. $\frac{15}{4}$		3	M1	for $3\frac{3}{4}$ expressed as an improper fraction
	e.g. $\frac{\cancel{15}^{5}}{4}\times\frac{7}{\cancel{9}^{3}}$ **OR** $\frac{105}{36}$ oe			M1	correct cancelling or multiplication of numerators and denominators without cancelling
	e.g. $\frac{\cancel{15}^{5}}{4}\times\frac{7}{\cancel{9}^{3}}=\frac{35}{12}=2\frac{11}{12}$ **or** $\frac{15}{4}\times\frac{7}{9}=\frac{105}{36}=\frac{35}{12}=2\frac{11}{12}$ **or** $\frac{15}{4}\times\frac{7}{9}=\frac{105}{36}=2\frac{33}{36}=2\frac{11}{12}$	shown		A1	dep on M2, for conclusion to $2\frac{11}{12}$ from correct working – either sight of the result of the multiplication e.g. $\frac{105}{36}$ oe must be seen **or** correct cancelling prior to the multiplication to $\frac{35}{12}$ NB: use of decimals scores no marks
					Total 3 marks

18			2	M1	Arcs on *BC*, *AB* and arcs from these points meeting **or** for bisector without arcs
		Correct bisector		A1	must see correct arcs
					Total 2 marks

19	(a)		h^9	1	B1	
	(b)	$(-5)^2 - 4 \times -5$ oe e.g. $25 + 20$		2	M1	for a correct substitution
			45		A1	
	(c)	$5x - 3 = 4(2x + 3)$ oe **or** $\frac{5x}{4} - \frac{3}{4} = 2x + 3$ oe		3	M1	for correctly removing the denominator, condone missing brackets
		e.g. $5x - 8x = 12 + 3$ **or** $-3x = 12 + 3$ **or** $8x - 5x = -12 - 3$ **or** $3x = -12 - 3$ **or** $-\frac{3}{4} - 3 = 2x - \frac{5x}{4}$ **or** $-\frac{15}{4} = \frac{3x}{4}$			M1	for a correct rearrangement with terms in x on one side and numbers on the other, allow correct rearrangement of their equation in the form $ax + b = cx + d$
			-5		A1	dep on at least M1 SCB2 for an answer of $x = -2$ coming from $5x - 3 = 8x + 3$ **or** $x = 5$ coming from $5x - 3 = 2x + 12$
						Total 6 marks

20	e.g. 5 × 4 + 15 × 10 + 25 × 15 + 35 × 25 + 45 × 6 (= 1690) **or** 20 + 150 + 375 + 875 + 270 (= 1690)		4	M2	For correct products using midpoints (allowing one error) with intention to add. If not M2 then award M1 for products using frequency and a consistent value within the range (allowing one error) with intention to add or correct products using midpoint without addition.
	"1690" ÷ 60			M1	dep on M1
		28.2		A1	accept 28.1 – 28.2
					Total 4 marks

21 (a)	8265 – 7500 (= 765) **or** $\frac{8265}{7500}(=1.102)$		3	M1	8265 – 7500 could be embedded in another calculation.
	$\frac{"765"}{7500}\times 100$ oe **or** "1.102" × 100 – 100 oe			M1	
		10.2		A1	oe
(b)	e.g. 31.5(0) ÷ (1 – 0.3)		3	M2	for a complete method e.g. 31.5(0) ÷ (1 – 0.3)
				(M1)	for 31.5(0) ÷ (100 – 30) (= 0.45) **or** e.g. (1 – 0.3)x = 31.5(0)
		45		A1	
					Total 6 marks

22	e.g. $a = (-3 + 47) \div 2$ $(= 22)$ **or** $\frac{11+b}{2} = -19$ $(b = -38 - 11 = -49)$ **or** method to add 25 to −3 **or** method to subtract 25 from 47 **or** method to subtract 30 from −19 **or** method to subtract 60 from 11		2	M1	for a correct method to find either coordinate or one coordinate correct. Look for correct method on their diagram, if used.
		$a = 22,\ b = -49$		A1	both correct
					Total 2 marks

23	Use of 2 hrs 42 mins = 2.7 hrs **or** 162 mins		4	B1	
	e.g. 90×2.7 $(= 243)$ **or** e.g. $\frac{90}{60} \times 162 (= 243)$ **or** e.g. $\frac{S}{90} = \frac{2.7}{3}$			M1	for use of $D = S \times T$ (accept use of their time e.g. 90×2.42) **or** for setting up an equation using proportion
	e.g. "243" ÷ 3 **or** $(S =)\ 90 \times \frac{2.7}{3}$			M1	(dep on M1) for their $D \div 3$ **or** for solving their equation
		81		A1	
					Total 4 marks

24	for 0.08 × 1200 oe (= 96) **or** 1.08 × 1200 oe (= 1296)	**OR** 1200 × 1.08^3		3	M1	for 0.08 × 1200 oe (= 96) **or** 1.08 × 1200 oe (= 1296)	**OR** M2 for 1200 × 1.08^3 **or** 1200 × 1.08^4 (= 1632.59) (M1 for 1200 × 1.08^2 (= 1399.68))
	1.08 × "1296" (= 1399.68) oe 1.08 × "1399.68" (= 1511.6544) oe				M1	for completing method to find total amount in the account	
			1512		A1	accept 1511 – 1512	
						SC: if no other marks gained award M1 for 0.24 × 1200 oe **or** 288 **or** 1488 accept (1 + 0.08) as equivalent to 1.08 throughout	
							Total 3 marks

25	e.g. 1.5 × 1.5 (= 2.25 oe)		3	M1	for calculating the area of the square, may be seen embedded within a calculation
	e.g. 34.8 × "2.25"			M1	for a complete method to find the force
		78.3		A1	oe
					Total 3 marks

26	e.g. $\frac{3}{"10"}\times 80(=24)$ **or** $\frac{2}{"10"}\times 80(=16)$ **or** $\frac{5}{"10"}\times 80(=40)$		5	M2	for a complete method to find the number of chocolate cakes **or** lemon cakes **or** fruit cakes "10" comes from 3 + 2 + 5 (M1 for correct use of the ratio e.g. 80 ÷ "10" (= 8))
	e.g. "16" × $\frac{3}{4}$ × 1.7(0) (= 20.4(0)) **or** "40" × $\frac{7}{8}$ × 2.4(0) (= 84)			M1	for a method to find the profit for lemon cakes **or** fruit cakes
	e.g. "24" × 2 (= 48) **and** "16" × $\frac{3}{4}$ × 1.7(0) (= 20.4(0)) **and** "40" × $\frac{7}{8}$ × 2.4(0) (= 84)			M1	for a method to find the profit for all 3 cakes
		152.4(0)		A1	
					Total 5 marks

27	(Interior angle of octagon =) 180 – (360 ÷ 8) (= 135) **or** $\frac{(8-2)\times 180}{8}(=135)$ oe **OR** (exterior angle of octagon =) 360 ÷ 8 (=45)		3	M1	correct method to find interior or exterior angle of octagon (if labelled incorrectly do not award mark)
	e.g. $\frac{(8-2)\times 180}{8}(=135)$ **and** (180 – "135") ÷ 2 (=22.5) **OR** 360 ÷ 8 (= 45) **and** "45" ÷ 2 (= 22.5)			M1	correct method to find interior angle of hexagon and base angle of triangle.
		112.5		A1	
					Total 3 marks

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