Mark Scheme (Results)

Summer 2018

Pearson Edexcel International GCSE
In Mathematics A (4MA0) Paper 1F

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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
  - 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  If working is crossed out and still legible, then it should be given any appropriate marks, as long as it has not been replaced by alternative work.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.

International GCSE Maths (4MA0_1F)				
Apart from Question 17b (where the mark scheme states otherwise), the correct answer, unless clearly obtained by an incorrect method, should be taken to imply a correct method.				
Question	**Working**	**Answer**	**Mark**	**Notes**
1 (a)		$-9, -7, -5, 0, 1, 3$	1	B1
(b)		0.078,0.08,0.7,0.707,0.87	1	B1
(c)		$\frac{17}{1000}$	1	B1
(d)		60	1	B1
(e)		$\frac{12}{18}$	1	B1

Question	Working	Answer	Mark	Notes
2 (a)		Indonesia	1	B1
(b)		5	1	B1
(c)		Mexico	1	B1
(d)	Eg $\frac{60\times850000}{1000}$ **or** $\frac{51000000}{1000}$ **or** $\frac{60\times0.85\text{million}}{1000}$ **or** $\frac{51\text{million}}{1000}$ **or** $60\times0.85\times\frac{1000000}{1000}$ **or** $51\times\frac{1000000}{1000}$ **or** 51×1000	51 000	3	M2 For a complete method If not M2 then M1 for $0.85\times1\,000\,000$ (=850 000) **or** 850 tonnes **or** 60×0.85 (=51) **or** digits 51 **or** $\frac{60}{1000}$ A1 Accept 0.051 million

Question	Working	Answer	Mark	Notes
3 (a)		46	1	B1
(b)		6700	1	B1
(c)	Eg (5.2 + 5.5) ÷2 **or** 5.2 + (5.5 – 5.2) ÷2 **or** 5.5 – (5.5 – 5.2) ÷2 oe	5.35	2	M1 For a complete method A1
(d)	Eg 0.45 × 800 **or** $\frac{45}{100}\times 800$ **or** $\frac{800}{100}\times 45$ oe	360	2	M1 For a complete method A1
(e)	Eg $\frac{3}{8}\times 240$ **or** 240 ÷ 8 × 3 **or** 0.375×240	90	2	M1 For a complete method A1
(f)	403 – 384 (=19) **or** $\frac{x}{403}$, $x \neq 19$	$\frac{19}{403}$	2	M1 A1

Question	Working	Answer	Mark	Notes
4 (a)		Hexagon	1	B1
(b)		Reason	1	B1 Eg: All <u>sides</u> are the <u>same</u> length **or** all (interior) <u>angles</u> are the <u>same</u> size **or** The polygon has 6 lines of symmetry **or** The polygon has order of rotational symmetry of order 6
(c)		A, H	2	B2 B1 for A, B1 for H
(d)		C	1	B1
(e)		D	1	B1
(f)		1	1	B1
(g) (i)		8	1	B1
(ii)		60	1	B1

Question	Working	Answer	Mark	Notes
5 (a)(i)		96	1	B1
(a)(ii)		Reason	1	B1 eg. multiplied by 2 oe **or** added last number onto itself 2×48 or 48 + 48??
(b)	1 572 864 ÷ 2 or 3×2^{18}	786 432	2	M1 or continues sequence (condone 1 arithmetic error) A1
(c)		Reason	1	B1 Eg. 7 962 622 is <u>not divisible by 3</u> **or** 7 962 622 is <u>not a multiple of 3</u> **or** $6\,291\,456 \times 2 \neq 7\,962\,622$ **or** 6 291 456 and 12 582 912 are consecutive terms in the sequence **or** 7 962 622 ÷ 3 = 2 654 207.33.. which is not an integer **or** $\frac{7\,962\,622}{2}$ $(=3\,981\,311)$ is an odd number/is not an even number (all other numbers in the sequence when divided by 2 give an odd number, apart from 3)

Question	Working	Answer	Mark	Notes
6 (a)	6 – 1	5	2	M1 for 6 and 1 identified A1
(b)	1, 1, 2, 2, 2, 3, 3, 4, 4, 6 **or** (2 + 3) ÷ 2	2.5	2	M1 for identifying 2 and 3 as middle numbers A1
(c)	(4+2+1+2+1+3+2+6+4+3)÷10 **or** 28 ÷ 10 or $\frac{28}{10}$ or $\frac{14}{5}$	2.8	2	M1 A1 Accept $2\frac{4}{5}$ or $2\frac{8}{10}$
7 (a)		5	1	B1
(b)		−11	1	B1
(c)		$7x - 5y$	2	B2 B1 for $7x$; B1 for $-5y$
(d)	$5g = 1 + 2$ **or** $5g = 3$ **or** $-5g = -1 - 2$ **or** $-5g = -3$ **or** $(1+2) \div 5$ oe	0.6	2	M1 A1 oe Eg $\frac{3}{5}$

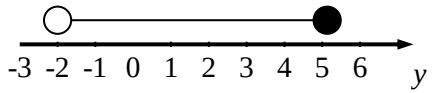
Question	Working	Answer	Mark	Notes
8	-20×1.8 (= −36) "−36" + 32	−4	3	M1 M2 for $-20\times1.8+32$ M1 A1
9	9450 – 500 **or** 8950 **or** 9450 ÷ 113 **or** 83.6(283…) **or** 500 ÷ 113 **or** 4.42(477…) Eg $\frac{9450-500}{113}$ **or** $\frac{8950}{113}$ **or** $\frac{9450}{113}-\frac{500}{113}$ **or** 83.6(283…) – 4.42(477…)	79	3	M1 For 9450 – 500 **or** 8950 **or** for the correct method to change 9450 KES or 500 KES to euros. M1 dep For a complete method Accept 83.6(283…) and 4.42(477…) rounded or truncated to at least 3 significant figures A1 Accept answers in the range79 – 79.204

Question	Working	Answer	Mark	Notes
10	360 – (90 + 69) **or** 360 – 159 **or** 201 **or** $x + 2x + 69 + 90 = 360$ "201" ÷ 3	67	3	M1 M1 For a complete method A1
11	56 ÷ 8 (=7) **or** 12 ÷ 3 (=4) **or** 30 ÷ 5 (=6) **or** 8 × 3 × 5 (= 120) **or** 56 × 12 × 30 (=20 160) "7" × "4" × "6" (=168) **or** "120" × 400 (= 48000) **or** "20 160" ÷ "120" (=168) 400 ÷ "168" **or** "48000" ÷ "20160" **or** 2.38(095…)	3	4	M1 M1 dep M1 Or for 168 × 2 (=336) **or** 168 × 3 (=504) **or** For 20160 × 2 (=40320) **or** 20160 × 3 (=60480) A1
12 (a)	$\frac{3167.352831}{13.7}$	231.19(3637)	2	M1 For 3167.35(2831) rounded or truncated to at least 2 decimal places or for 13.7 or for 231.(193....) rounded or truncated to at least 3 significant figures A1 Accept rounded or truncated to at least 2 decimal places
(b)		230	1	B1 ft from (a) provided more than 3 significant figures

Question	Working	Answer	Mark	Notes
13	62.8 ÷ 8 (=7.85) **or** 12 ÷ 8 (=1.5) **or** 62.8 ÷ 2 (=31.4) **or** 62.8 ÷ 4 (15.7) **or** $8x = 62.8 \times 12$ **or** $8x = 753.6$	94.20	2	M1 Or for a complete method Eg $62.8 \times \frac{12}{8}$ **or** 62.8×1.5 A1 Accept 94.2
14 (a)	2.25 **or** 2 × 60 + 15 (=135) Eg 40 ÷ 2.25 **or** $40 \div 2\frac{1}{4}$ **or** $\frac{40}{2.25}$ **or** $\frac{40}{2\frac{1}{4}}$ **or** 40 ÷ '135' × 60 **or** $\frac{160}{9}$ oe	18	3	M1 For 2.25 **or** 2 × 60 + 15 **or** 135 M1 For a complete method A1 Accept $17\frac{7}{9}$ **or** 17.7(777...) rounded or truncated to at least 3 significant figures SCB1 for 40 ÷ 2.15 **or** 18.6(046) rounded or truncated to at least 3 significant figures
(b)	28 500 × 0.024 oe (=684) 28 500 + "684"	29 184	3	M1 M2 for 28 500 × 1.024 oe M1 dep A1
(c)	702 ÷ 3 (=234) **or** 100 ÷ 3 (=33.3…) **or** $1.03x = 702 + x$ **or** $0.03x = 702$ oe "234" × 100 **or** "33.3…" × 702	23 400	3	M1 M2 for 702 ÷ 0.03 oe M1 dep A1 SCB2 for 24102

Question	Working	Answer	Mark	Notes
15 (a)		Reflection in the line with equation $x = 6$	2	B1 for reflection B1 for $x = 6$ NB. Award no marks if more than one transformation given
(b)		trapezium with vertices (4, −2) (4, −4) (7, −6) (7, −2)	2	B2 If not B2 then award B1 for trapezium in correct orientation **or** a trapezium with 3 vertices correct
16 (a)	$x + 2x + 3x + x + x$ **or** $8x$	$\frac{1}{8}$ oe	3	M1
	$x + 2x + 3x + x + x = 1$ **or** $8x = 1$ **or** $\frac{x}{8x}$			M1 A1 Oe
(b)	$3 \times "\frac{1}{8}" \times 200$ **or** $\frac{3x}{8x} \times 200$ **or** $200 \times 3x$ **or** $600x$	75	2	M1 ft from (a) if $0 < "(a)" < 1$ A1 ft from (a) if $0 < "(a)" < 1$ SCB1 for an answer of 25 Only award A1 for numerical answers

Question	Working	Answer	Mark	Notes
17 (a)		$m(m + 7)$	1	B1
(b)	$7x + 21$	-12.5 oe	3	M1 for $7x + 21$ or division of all terms by 7
	eg $7x - 5x = -4 - 21$ or $2x = -25$ or $21 + 4 = 5x - 7x$ **or** $25 = -2x$			M1 for isolation of terms in x on one side of a correct equation ft from $7x + 3 = 5x - 4$ (eg $7x - 5x = -4 - 3$ or $2x = -7$)
				A1 dep on at least M1 awarded
(c)	$y^2 + 9y - 4y - 36$	$y^2 + 5y - 36$	2	M1 for 3 terms correct **or** all 4 terms correct ignoring signs **or** $y^2 + 5y + \ldots$ **or** $\ldots\ldots + 5y - 36$
				A1
18	Eg (HJ^2=) $16.2^2 - 11.8^2$ (= 123.2) **or** (HJ^2=) 262.44 – 139.24	11.1	3	M1 For squaring and subtracting
	Eg (HJ=) $\sqrt{16.2^2 - 11.8^2}$ **or** $\sqrt{"123.2"}$			M1 Dep (for square rooting)
				A1 for 11.09 – 11.1 Award M2 for trigonometry used only for a complete method

Question	Working	Answer	Mark	Notes
19 (a)	$-3-4<x<9-4$ **or** $-7<x$ **or** $x<5$	$-7<x<5$	2	M1 Or for -7 and 5 A1 Accept $x>-7$ **and** $x<5$
(b)			2	B2 B1 for a line that extends from -2 to 5 **or** for correct circles in correct place with either no line or incorrect lines **or** for a correct circle at 5 with line to the left (with or without arrow) **or** for a correct circle at -2 with line to the right (with or without arrow)

Question	Working	Answer	Mark	Notes
20 (a)		$164 < w \leq 168$	1	B1
(b)	$162 \times 12 + 166 \times 20 + 170 \times 14 + 174 \times 7 + 178 \times 4 + 182 \times 3$ **or** $1944 + 3320 + 2380 + 1218 + 712 + 546$	10 120	3	M2 freq × all correct midpoint values stated (or evaluated) with intention to add (condone any two errors in midpoints or frequencies) If not M2 then award M1 for all products $w \times f$ (and w is consistently within the interval, including end values) and intention to add (condone any two errors in their midpoints or frequencies) A1 SCB2 for 168.(666....) rounded or truncated to at least 3 significant figures