Mark Scheme (Results)

Summer 2018

Pearson Edexcel International GCSE
In Mathematics A (4MA0) Paper 2F

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  If working is crossed out and still legible, then it should be given any appropriate marks, as long as it has not been replaced by alternative work.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

IGCSE Maths - Paper 2F 2018 June Mark scheme

Question		Working	Answer	Mark	Notes
1	(a)		Laerdal	1	B1 accept Norway
	(b)		300	1	B1
	(c)	15516 − 8820	6696	2	M1 A1
	(d)		14.7	1	B1 accept 14.700
2	(a)		Arrows marked	1	B1
	(b)		Obtuse angle marked	1	B1
	(c)		4.5	1	B1
	(d)		*H* marked	1	B1
3	(a)		24	1	B1
	(b)		2 orange icons in Fri	1	B1 Oe
	(c)	24 + 20 + 4 + 18 + 16 Or 10 × 8 + 8÷4	82	2	M1 for at least 3 correct from diagram A1 ft (a) and pictogram

Question		Working	Answer	Mark	Notes
4	(a)		× at 0.5	1	B1
	(b)		× at 0	1	B1
	(c)		× at 1	1	B1
5	(a)		15 20	1	B1
	(b)		10 10	1	B1 accept a.m. or p.m with 10 10
	(c)	0 25+2 15	2hr 40 min	2	M1 A1
6	(a)		12	1	B1
	(b)	27 −"12"	15	2	M1 A1 ft
	(c)		cuboid	1	B1
7	(a)		Correct pattern	1	B1
	(b)		13, 17	1	B1
	(c)		41	1	B1

Question		Working	Answer	Mark	Notes
8	(a)	$360 - 100 = 260$ $260 \div 2$	130	2	M1 for a complete method
	(b)		Correct triangle	2	B2 for a fully correct triangle (B1 for either *AC* or for angle *BAC*)
	(c)		4.8	1	B1 (±0.2) ft on a triangle
9	(a)		81	1	B1
	(b)		16	1	B1
	(c)	0.38×0.25	0.095	2	M1 or $0.38 \div 4$ A1
10	(a)		$3x$	1	B1
	(b)		$8ky$	1	B1 accept $8\times ky$
	(c)	$22 = 4f - 3 \times 2$ $22 + 6 = 4f$ or $5.5 = f - 1.5$	7	3	M1 M1 A1

Question		Working	Answer	Mark	Notes	
11	(a)(i)		17	3	B1	
	(a)(ii)		25		B1	
	(a)(iii)		20		B1	
	(b)		12 and 18	1	B1	or 18 and 12
12	(a)		160	1	B1	
	(b)		6.9	1	B1	6.8 - 7.0
	(c)		400	2	M1	for a complete method e.g 160 + 160 + 80
					A1	380 – 420 SC B1 for 500
13		$1 + 1 + \frac{1}{2} + \frac{1}{2}$ (= 3) or 216 ÷ 2 (=108) or 216 ÷ 4 (=54)	72	3	M1	or $x + x + \frac{x}{2} + \frac{x}{2} = 216$
		216 ÷"3" or "108" ÷ 3 × 2 or "54" ÷ 3 × 4			M1	A complete method
					A1	

Question		Working	Answer	Mark	Notes
14	(a)		Table completed	2	B2 for all correct (B1 for at least 10 correct)
	(b)		$\frac{1}{24}$	1	B1 oe ft table
	(c)		$\frac{3}{24}$	1	B1 oe ft table
	(d)		$\frac{6}{24}$	1	B1oe NB Penalise faulty notation first time only
15	(a)		3	1	B1 accept × 3
	(b)		15	1	B1 ft (a)
	(c)		14	1	B1 ft (a)
16		12 × 8 × 1.8 (= 172.8) "172.8" × 1000 (= 172800) "172800" ÷ 3000	58	4	M1 M2 for "172.8" × 1000 ÷ 3000 or "172.8" ÷ 3 If not M2 then M1 for "172.8" × 1000 or "172.8" ÷ 3000 A1 accept 57.6

Question		Working	Answer	Mark	Notes
17	(a)	$\frac{7}{8}\times 120$ (= 105) or $\frac{2}{3}\times 120 (= 80)$ $\frac{2}{3}\times$ "105" or $\frac{7}{8}\times$ "80" or "$\frac{7}{12}$" $\times 120$ oe	70	3	M1 or $\frac{7}{8}\times\frac{2}{3}$ $(=\frac{7}{12})$ oe or $\frac{7}{8}\times 100 (= 87.5)\%$ **and** $\frac{87.5}{100}\times 120$ (=105) M1 for a complete method A1
	(b)	$\frac{31500}{42000}\times 100$	75	2	M1 A1
	(c)	$\frac{1}{2}\times(120+80)\times 110$ **or** 80 × 110 + 2 × ½×½× (120 − 80) ×110	11 000	2	M1 or a complete method involving a rectangle and two triangles A1

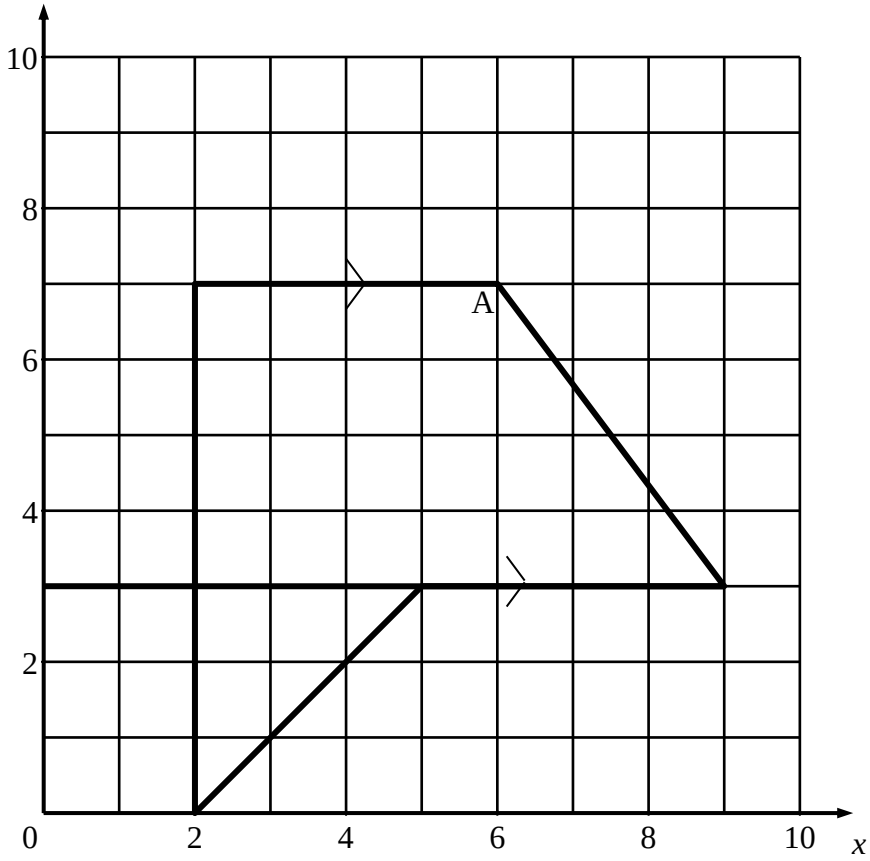
Question		Working	Answer	Mark	Notes	
18	(a)	$0\times12+1\times3+2\times9+3\times4+4\times14+5\times2+6\times6$ or (0) + 3 + 18 + 12 + 56 +10+ 36 or 135 $\frac{0\times12+1\times3+2\times9+3\times4+4\times14+5\times2+6\times6}{50}$ or $\frac{"135"}{50}$	2.7	3	M1 M1 A1	for Σf*x*, allow 1 error or omission (dep) for Σf*x*/ Σf Allow their Σf*x* providing first M1 earned Allow division by their Σf provided addition or total under column is shown accept 3 if 2.7 or 135÷ 50 seen in working
	(b)		$\frac{9}{50}$	1	B1	oe

Question	Working	Answer	Mark	Notes
19	($\angle$ *ABE*) = $36^o + 60^o$(= 96^o) or $36^o + 60^o + 60^o$ (=156^o) ($\angle$ *BED*) (or $\angle$ *CBE*) = 180^o − "96^o" (=84^o) ($\angle$*DEG*) = "84^o" − 60^o Or 180^o − "156^o"	24	4	M1 M1 for a complete method A1 for 24 B1 (dep M1,M1) Reasons: Angles in an equilateral triangle are 60^o, alternate angles are equal,(the sum of co-interior (allied) angles is 180^o),(the sum of angles on a straight line is 180^o) At least 2 relevant reasons, one of which must refer to alternate or co-interior (allied) angles

Question		Working	Answer	Mark	Notes
20	(a)	$\frac{0.5}{2}\times 5$	1.25	2	M1 A1
	(b)	$\frac{630}{2+5}\times 5$	450	2	M1 A1
	(c)	2 × 13.5(0) (=27) **and** 5 × 18(=90) or e.g.0.18 × 13.50 (=2.43) **and** 0.45 × 18(=8.1(0)) or e.g.0.5 × 13.50(=6.75) **and** 1.25 × 18 (=22.5(0)) or e.g 2 × 13.5(0)÷7 (= 3.85..) **and** 5 × 18÷7 (=12.85..)	3:10	3	M1 Oe for any multipliers in the ratio 2:5
		"27" : "90" or "2.43" :" 8.1(0)" or "6.75 : 22.5(0)" or "3.85":"12.85"			M1 Dep and written as a ratio
					A1 A1 accept 1 : 3.33….. or 0.3 : 1 (SC B1 for 3 : 4)

Question		Working	Answer	Mark	Notes	
21		336 = 2 × 168 = 2 × 2 × 84 = 2 × 2 × 2 × 42 = 2 × 2 × 2 × 2 × 21	2 × 2 × 2 × 2 × 3 × 7	3	M1 A1 dep on M1 A1 dep on M1	for at least two correct steps in repeated factorisation (may be seen in a tree diagram) 2, 2, 2, 2, 3, 7 (condone inclusion of 1) or $2^4 \times 3 \times 7$
22	(a)		$2x^2 + 5x$	1	B1	
	(b)(i)		y^8	1	B1	
	(b)(ii)		k^7	1	B1	
	(b)(iii)		t^{12}	1	B1	
	(c)	$x + x + 4 + 3(x + 4)$	$5x + 16$	2	M1 A1	for any two of x, $x + 4$ or $3(x + 4)$ oe any correct expression (SC B1 for $x + 4x + 3 \times 4x$ or $17x$)
23	(a)		9, −1, −3, 3	2	B2	All correct (B1 for two or three correct)
	(b)		Correct curve	2	M1 A1	dep on at least B1 in (a); at least 6 of their points correctly plotted Correct smooth curve
	(c)		−3.25	1	B1	−3.0 to −3.4 ft on M1 in (b)

2



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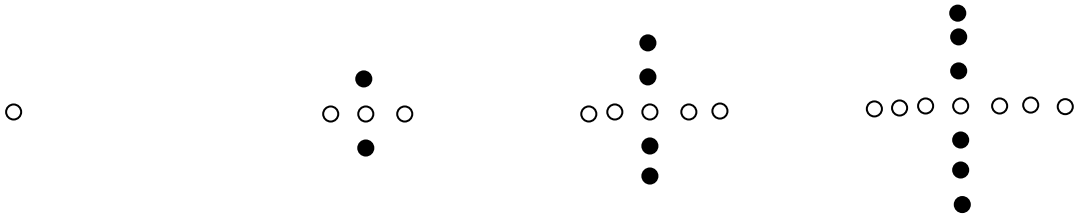

Pattern Number 1	Pattern Number 2	Pattern Number 3	Pattern Number 4

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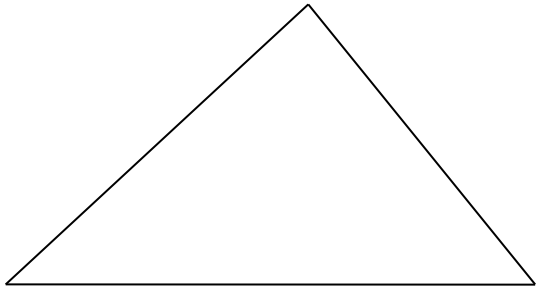

17

		Number the dice lands on					
		1	**2**	**3**	**4**	**5**	**6**
Number the spinner lands on	**1**	2	**3**	4	5	6	7
	2	3	4	5	6	**7**	8
	3	4	5	6	7	8	9
	4	5	6	7	8	9	10

23