



Pearson
Edexcel

Mark Scheme (Results)

Summer 2018

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

Edexcel and BTEC Qualifications

Edexcel and BTEC qualifications are awarded by Pearson, the UK's largest awarding body. We provide a wide range of qualifications including academic, vocational, occupational and specific programmes for employers. For further information visit our qualifications websites at www.edexcel.com or www.btec.co.uk. Alternatively, you can get in touch with us using the details on our contact us page at www.edexcel.com/contactus.

Pearson: helping people progress, everywhere

Pearson aspires to be the world's leading learning company. Our aim is to help everyone progress in their lives through education. We believe in every kind of learning, for all kinds of people, wherever they are in the world. We've been involved in education for over 150 years, and by working across 70 countries, in 100 languages, we have built an international reputation for our commitment to high standards and raising achievement through innovation in education. Find out more about how we can help you and your students at: www.pearson.com/uk

Summer 2018

Publications Code 4MA0_2F_1806_MS

All the material in this publication is copyright

© Pearson Education Ltd 2018

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) <i>H</i> 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	2	M1 A1
6	(a)	12	1	B1
	(b)	27 –"12"	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 $216 \div 2$ $(=108)$ or $216 \div 4 (=54)$ $216 \div "3"$ or $"108" \div 3 \times 2$ or $"54" \div 3 \times 4$	72	3	M1 or $x + x + \frac{x}{2} + \frac{x}{2} = 216$ 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 $\times 3$
(b)		15	1	B1 ft (a)
(c)		14	1	B1 ft (a)
16	$12 \times 8 \times 1.8 (= 172.8)$ " 172.8 " $\times 1000 (= 172800)$ " 172800 " $\div 3000$	58	4	M1 M2 for " 172.8 " $\times 1000 \div 3000$ or " 172.8 " $\div 3$ If not M2 then M1 for " 172.8 " $\times 1000$ or " 172.8 " $\div 3000$ 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 $80 \times 110 +$ $2 \times \frac{1}{2} \times \frac{1}{2} \times (120 - 80) \times 110$	11 000	2	M1 or a complete method involving a rectangle and two triangles A1

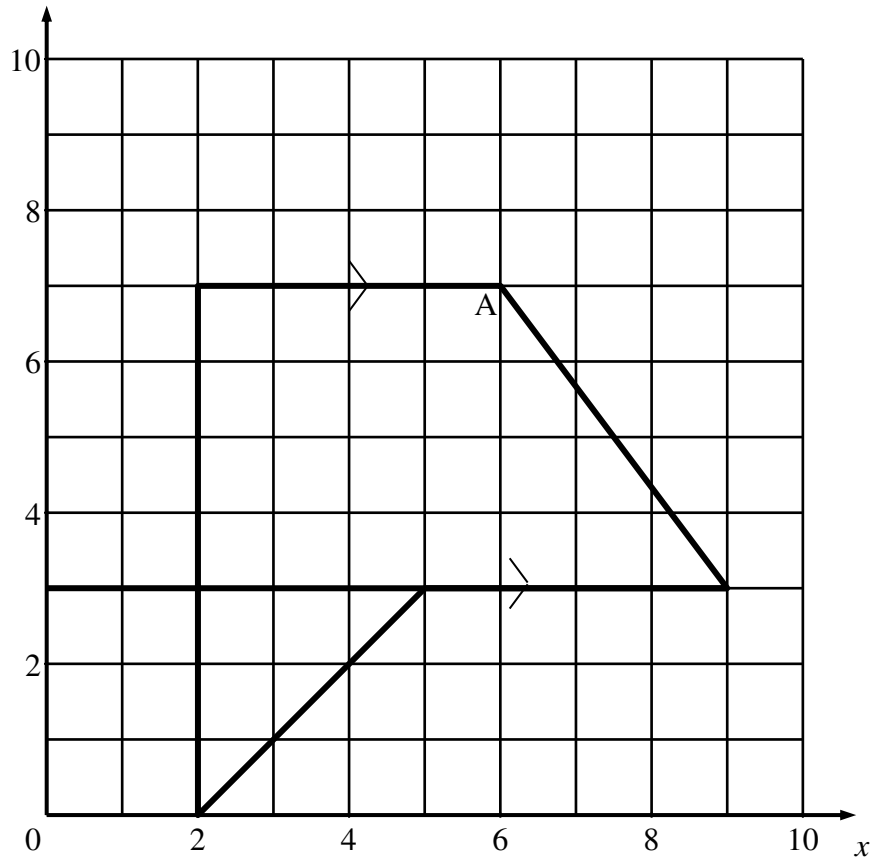
Question	Working	Answer	Mark	Notes
18 (a)	$0 \times 12 + 1 \times 3 + 2 \times 9 + 3 \times 4 + 4 \times 14 + 5 \times 2 + 6 \times 6$ or $(0) + 3 + 18 + 12 + 56 + 10 + 36$ or 135 $0 \times 12 + 1 \times 3 + 2 \times 9 + 3 \times 4 + 4 \times 14 + 5 \times 2 + 6 \times 6$ <hr style="width: 50%; margin-left: auto; margin-right: auto;"/> 50 or $\frac{"135"}{50}$	2.7	3	M1 for Σfx , allow 1 error or omission M1 (dep) for $\Sigma fx / \Sigma f$ Allow their Σfx providing first M1 earned Allow division by their Σf provided addition or total under column is shown A1 accept 3 if 2.7 or $135 \div 50$ seen in working
(b)		$\frac{9}{50}$	1	B1 oe

Question	Working	Answer	Mark	Notes
19	$(\angle ABE) = 36^\circ + 60^\circ (= 96^\circ)$ or $36^\circ + 60^\circ + 60^\circ (=156^\circ)$ $(\angle BED) \text{ (or } \angle CBE) = 180^\circ - "96^\circ" (=84^\circ)$ $(\angle DEG) = "84^\circ" - 60^\circ$ Or $180^\circ - "156^\circ"$	24	4	M1 M1 for a complete method A1 for 24 B1 (dep M1,M1) Reasons: Angles in an <u>equilateral</u> triangle are <u>60°</u> , <u>alternate</u> angles are equal,(the sum of <u>co-interior (allied)</u> angles is <u>180°</u>),(the sum of <u>angles</u> on a <u>straight line</u> is <u>180°</u>) 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)	<p>$2 \times 13.5(0) (=27)$ and $5 \times 18(=90)$ or e.g. $0.18 \times 13.50 (=2.43)$ and $0.45 \times 18(=8.1(0))$ or e.g. $0.5 \times 13.50(=6.75)$ and $1.25 \times 18 (=22.5(0))$ or e.g. $2 \times 13.5(0) \div 7 (= 3.85..)$ and $5 \times 18 \div 7 (=12.85..)$</p> <p>"27" : "90" or "2.43" : " 8.1(0)" or "6.75 : 22.5(0)" or "3.85":"12.85"</p>	3:10	3	M1 Oe for any multipliers in the ratio 2:5 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	$336 = 2 \times 168 = 2 \times 2 \times 84$ $= 2 \times 2 \times 2 \times 42$ $= 2 \times 2 \times 2 \times 2 \times 21$	$2 \times 2 \times 2 \times 2 \times 3$ $\times 7$	3	M1 for at least two correct steps in repeated factorisation (may be seen in a tree diagram) A1 dep on M1 2, 2, 2, 2, 3, 7 (condone inclusion of 1) A1 dep on M1 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 for any two of x , $x + 4$ or $3(x + 4)$ oe A1 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 dep on at least B1 in (a); at least 6 of their points correctly plotted A1 Correct smooth curve
(c)		-3.25	1	B1 -3.0 to -3.4 ft on M1 in (b)

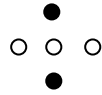
2



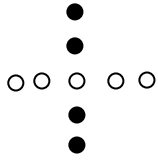
7



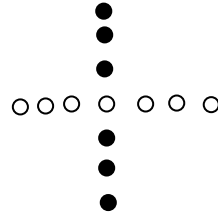
Pattern
Number 1



Pattern
Number 2

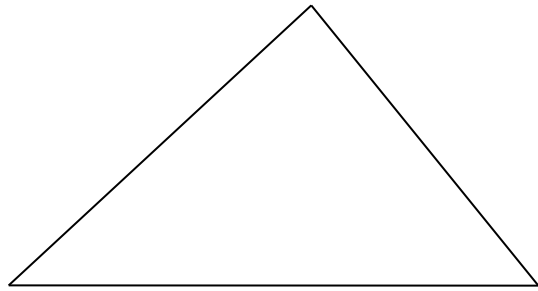


Pattern
Number 3



Pattern
Number 4

8



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

