



Mark Scheme (Results)

January 2012

International GCSE Mathematics
(4MA0) Paper 1F

Edexcel and BTEC Qualifications

Edexcel and BTEC qualifications come from Pearson, the world's leading learning company. We provide a wide range of qualifications including academic, vocational, occupational and specific programmes for employers. For further information, please call our GCE line on 0844 576 0025, our GCSE team on 0844 576 0027, or visit our qualifications website at www.edexcel.com. For information about our BTEC qualifications, please call 0844 576 0026, or visit our website at www.btec.co.uk.

If you have any subject specific questions about this specification that require the help of a subject specialist, you may find our Ask The Expert email service helpful.

Ask The Expert can be accessed online at the following link:

<http://www.edexcel.com/Aboutus/contact-us/>

Pearson: helping people progress, everywhere

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 raising achievement through innovation in education. Find out more about how we can help you and your students at: www.pearson.com/uk

January 2012

Publications Code UG030741

All the material in this publication is copyright

© Pearson Education Ltd 2012

January 2012 International GCSE Mathematics (4MA0) Paper 1F Mark Scheme

Question	Working	Answer	Mark	Notes
1. (a)		5	1	B1
(b)		12	1	B1
(c)		3 Squares shaded	1	B1
				Total 3 marks
2. (a) (i)		112	1	B1
(ii)		16	1	B1
(iii)		1377	1	B1
(iv)		6	1	B1
(b) (i)		5 3 2	1	B1 (any order)
(ii)		523	1	B1 ft from (bi)
				Total 6 marks
3. (a)		Angles do not add up to 360°	2	B2 (B1 for $245 + 135 = 380$)
(b) (i)		obtuse (angle)	1	B1 (any recognisable spelling)
(ii)		reflex (angle)	1	B1 (any recognisable spelling)
				Total 4 marks
4. (a) (i)		Pyramid	1	B1 (any recognisable spelling)
(ii)		(Hexagonal) Prism	1	B1 (accept any prism)
(b) (i)		5	1	B1
(ii)		12	1	B1
				Total 4 marks

5. (a)		Wednesday	1	B1 (any recognisable spelling or abbreviation)
(b) (i)		10	1	B1
(ii)		40	1	B1 ft from (i) {i.e. 4 x ans to (b)(i)}
(iii)		25	1	B1 ft from (i) {i.e. 2.5 x ans to (b)(i)}
(c) (i)		0.12	1	B1 cao
(ii)	12/100	3/25	2	M1 accept 6/50 A1
(d)		15:35 3:7	2	M1 A1 cao SC B1 for 7:3 or 1: 2.33..{at least 2 d.p}
				Total 9 marks

6. (a)		XXXXXXXXX X X X X	1	B1
(b)	$9 \times 3 - 2$	25	2	M1 A1
(c)	$(37 + 2) \div 3$ or $37 = 3^n - 2$	13	2	M1 accept $\div 3$ and $+2$ operating on 37 in any order (e.g 14.33...) A1
(d)		$N = 3P - 2$	3	B3 for $N = 3P - 2$ oe B2 for $3P - 2$ B1 for $N =$ linear function of P
				Total 8 marks

7. (a)	3 + 18 or -18 -3	21	2	M1 A1 (accept -21)
(b)	-18 +11	-7	2	M1 A1 cao
(c) (i)		(0)2 25 pm	1	B1 allow 2.25, 2:25, with leading zeros, 25(mins) past 2 pm
(ii)	25 + 10 + 45 (=80) or 25 + 10 + 105 (=140) or 14 25 + 2hrs - 5mins or 2.25 + 2hrs - 5 mins or 14 25 + 1 hr 55mins or 2.25 + 1 hr 55 mins	16 20	2	M1 intention to add all minute components conversion of cooking time to minutes & intention to add A1 (accept 4.20)
				Total 7 marks

8. (i)	Mark A	Mark A at 1	1	B1
(ii)	Mark B	Mark B at 0.8 cm to 3 cm from O	1	B1
(iii)	Mark C	Mark C at 0.5	1	B1
				Total 3 marks

9. (a)		36 ± 2	1	B1
(b)		$(-1, 5)$	1	B1
(c)		$y = 1$	1	B1
(d)		Points at $(-3,0)$ $(4,0)$ $(2,-3)$ $(-1,-3)$	2	B2 B1 any 2 or 3 points correct
				Total 5 marks

10. (a)		- 40	1	B1
(b)		1024	1	B1
(c)		23	1	B1
(d) (i)		3.44821(724..)	1	B1 at least 4 sig figs
(ii)		3.45	1	B1 ft if d(i) is > 3 sf
				Total 5 marks

11. (a)	“60”/”40” or “40”/”60” 18 x “60”/”40” oe	27	3	M1 (angles $\pm 2^\circ$) M1 A1 accept answers which round to 29 to 25 if evidence of angles measured.
(b)	60/150 x 360	144	2	M1 M1 for 60/150 (=0.4) or 150/60 (=2.5) A1
				Total 5 marks

12. (a) (i)		3be	1	B1 (accept any order but no “x’s”)
(ii)		4p ³	1	B1
(iii)		8g – 7h	2	B2 (B1 for 8g or – 7h)
(b)		45	1	B1
(c)		a(5 – 3a)	2	B2 B1 for factors which when expanded & simplified give 2 terms for which one is correct.
(d) (i)		8 – 6w	1	B1
(ii)		y ³ + 10y ²	2	B2 B1 for y ³ or 10y ²
				Total 10 marks

13. (a)	7/32 x 100 oe	21.9	2	M1 A1 (21.875) accept awrt to 21.9
(b)	4/100 x 32 (=1.28) or 4/100 x 32000000 (=1280000) 32 + “1.28” or 32000000 + “1280000”	33	3	M1 M2 for 32 x 1.04 oe or 32000000 x 1.04 oe M1 (dep) A1 (33.28) accept 33.3, 33000000, 33300000, 33280000
				Total 5 marks

14.	2/5 x 30	12	2	M1 A1 12 out of 30 =M1A1 12/30= M1A0
				Total 2 marks

15.	Arcs of length 6cm from A and B		4	M1
	Arc of length 10 cm from A or B			M1
	Arc of length 6 cm from correct top vertex			M1
	Correct rhombus within overlay tolerance			A1 Dependent on M3 sc B1 for correct rhombus with no construction lines.
Total 4 marks				

16. (a) (i)	Does not study Maths No student studies (both) German and Maths Students who study German do not study Maths etc	1	B1	Accept general answers (e.g. no student belongs in both sets).
(ii)	(Preety) does not study French (Preety) is not a member of (set) F	1	B1	Accept she /he in place of Preety or omission of name. Penalise extra incorrect statements (e.g. Preety studies Maths and German but not French)
(b)	1,2,3,4	2	B2	(B1 for any 3 correct with no repetitions or additions)
Total 4 marks				

17.	$\pi \times 7.5^2 \times 26$	4590	3	M2 M1 for $\pi \times 15^2 \times 26$ or 18369 → 18386 inc A1 (4594.579....) accept answers 4592 → 4597 inc
Total 3 marks				

18.	$3x - 12 = 5x + 8$ $-20 = 2x$ oe	- 10	3	M1 for $3x - 12$ M1 separating x 's and numbers A1 cao (dep on M1)
Total 3 marks				

19. (a)		9 to 11	1	B1
(b)	$(1 \times 3) + (4 \times 6) + (7 \times 10) + (10 \times 15) + (13 \times 5) + (16 \times 1) (=328)$ “328” ÷ (“3+6+10+15+5+1”)	8.2	4	M2 All products, $t \times f$ using $\frac{1}{2}$ way points correctly, and intention to add. Award M1 if all products, $t \times f$ using their $\frac{1}{2}$ way points consistently, from 6 to 8 interval onwards and intention to add. M1 (dep on one at least M1) A1 Accept 8 with working. 8 without working = M0A0
Total 5 marks				

20. (a)	Use of sine or $\frac{\sin x}{3.4} = \frac{\sin 90}{5.8}$ sin "x" = 3.4 / 5.8 (=0.586..)	35.9	3	M1 Sine must be selected for use. M1 A1 (35.888...)Use isw on awrt 35.9
(b) (i)		5.85	1	B1 accept 5.849 rec
(ii)		5.75	1	B1
				Total 5 marks

Further copies of this publication are available from
Edexcel Publications, Adamsway, Mansfield, Notts, NG18 4FN

Telephone 01623 467467

Fax 01623 450481

Email publication.orders@edexcel.com

Order Code UG030741 January 2012

For more information on Edexcel qualifications, please visit
www.edexcel.com/quals

Pearson Education Limited. Registered company number 872828
with its registered office at Edinburgh Gate, Harlow, Essex CM20 2JE

Ofqual



Llywodraeth Cynulliad Cymru
Welsh Assembly Government

