

# Mark Scheme (Results)

January 2012

International GCSE Mathematics  
(4MA0) Paper 1F

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Publications Code UG030741

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Question	Working	Answer	Mark	Notes
1. (a)		5	1	B1
(b)		12	1	B1
(c)		3 Squares shaded	1	B1
				<b>Total 3 marks</b>

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)
				<b>Total 6 marks</b>

3. (a)		Angles do not add up to $360^\circ$	2	B2 (B1 for $245 + 135 = 380$ )
(b) (i)		obtuse (angle)	1	B1 (any recognisable spelling)
(ii)		reflex (angle)	1	B1 (any recognisable spelling)
				<b>Total 4 marks</b>

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
				<b>Total 4 marks</b>

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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}
				<b>Total 9 marks</b>

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
				<b>Total 8 marks</b>

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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)
				<b>Total 7 marks</b>

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
				<b>Total 3 marks</b>

9. (a)		$36 \pm 2$	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
				<b>Total 5 marks</b>

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
				<b>Total 5 marks</b>

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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
				<b>Total 5 marks</b>

12. (a) (i)		3be	1	B1 (accept any order but no “x’s”)
(ii)		4p <sup>3</sup>	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 <sup>3</sup> + 10y <sup>2</sup>	2	B2 B1 for y <sup>3</sup> or 10y <sup>2</sup>
				<b>Total 10 marks</b>

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
				<b>Total 5 marks</b>

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

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15.	Arcs of length 6cm from A <b>and</b> B		4	M1
	Arc of length 10 cm from A <b>or</b> 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.
<b>Total 4 marks</b>				

16. (a) (i)	Does not study Maths No student studies (both) German <b>and</b> 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)
<b>Total 4 marks</b>					

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

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)	
<b>Total 3 marks</b>					

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" $\div$ ("3+6+10+15+5+1")	1028 8.2	4	M2 M1 A1	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. (dep on one at least M1) Accept 8 with working. 8 without working = M0A0
<b>Total 5 marks</b>					

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
				<b>Total 5 marks</b>

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Order Code UG030741 January 2012

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