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Mark Scheme (Results)

January 2012

International GCSE Mathematics
(4MA0) Paper 1F

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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^o	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 x 3 – 2	25	2	M1 A1
(c)	(37 + 2) ÷ 3 or 37 = 3“*n*” – 2	13	2	M1 accept ÷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 M1 A1	(angles ±2°) accept answers which round to 29 to 25 if evidence of angles measured.
(b)	60/150 x 360	144	2	M1 A1	M1 for 60/150 (=0.4) or 150/60 (=2.5)
					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 M1 A1	M2 for 32 x 1.04 oe or 32000000 x 1.04 oe (dep) (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			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		4	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 A1	M1 for $\pi \times 15^2 \times 26$ or 18369 → 18386 inc (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 x 3) + (4 x 6) + (7 x 10) + (10 x 15) + (13 x 5) + (16 x 1) (=328)			M2	All products, *t* x f using ½ way points correctly, and intention to add. Award M1 if all products, *t* x f using their ½ way points consistently, from 6 to 8 interval onwards and intention to add.
	"328" ÷ ("3+6+10+15+5+1")	8.2	4	M1 A1	(dep on one at least M1) 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

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