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Mark Scheme (Results)

June 2011

International GCSE
Mathematics (4MA0) Paper 2F

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International GCSE Maths June 2011 – Paper 2F Mark scheme

Question	Working	Answer	Mark	Notes
1. (i)		right (angle)	1	B1
(ii)		acute (angle)	1	B1
(iii)		reflex (angle	1	B1
				Total 3 marks

2. (a)		12	1	B1
(b)	9 – 6	3	2	M1 A1
(c)		 oe	1	two full circles and one semi-circle or 10 quarter circles B1
(d)	20/100 x 10 oe	2	2	M1 A1
				Total 6 marks

3. (a)		6.7 oe	1	B1
(b) (i)		Arrow at correct place	1	B1 (2 “marks” to right of 3.6)
(ii)		3.9 oe	1	B1
(iii)		4(.0)	1	B1
				Total 4 marks

4. (a) (i)		16	1	B1
(ii)		10	1	B1
(iii)		15	1	B1
(iv)		11	1	B1
(v)		8	1	B1
(b)		20 &11	1	B1 Any order
(c)		15	1	B1
				Total 7 marks

5. (a)		5.4 ±0.2	1	B1	
(b)		(9 , 7)	1	B1	
(c)	6 x 5	30		M1 A1	B2 for 29 ≤ area ≤ 31 inclusive if counting squares B1 for 28 ≤ area <29 or 31 < area ≤ 32 if counting squares
		Square cms or cm^2	3	B1 (ind)	
					Total 5 marks

6. (a)		B & E	1	B1 Any order
(b) (i)		A	1	B1
(b) (ii)		(order) 2	1	B1
				Total 3 marks

7. (a)		4.62, 4.7, 6.04, 6.34, 6.4	1	B1 cao
(b)		6.75	1	B1 (ignore trailing zeros)
				Total 2 marks

8. (a) (i)		80	1	B1
(a) (ii)		37 → 38 inclusive	1	B1
(b)	8 x 175 ÷ 5	280	2	M1 A1
				Total 4 marks

9. (a)		Oslo or – 8	1	B1
(b)	– 2– – 8 or – 8 + ? = – 2	6	2	M1 A1 SC B1 for – 6 as an answer with or without working
				Total 3 marks

10.	3/8 x 120 oe	45	2	M1 accept 3 x 15 or 360 ÷ 8 A1
				Total 2 marks

11.	20 ÷ 5 x 7 oe	28	2	M1 accept 4 x 7 or 140 ÷ 5 A1
				Total 2 marks

12. (a) (i)		28	1	B1
(ii)	$6y = 23 - 5$	3	2	M1 or 23 – 5 ÷ 6 or 22.16... (2dp necessary) or 22.17 A1 Answer only or numerical method =M1A1
(b) (i)		a^4	1	B1
(b) (ii)		30ab	1	B1
(b) (iii)		q^6	1	B1
(c)	$6^2 - 2 \times 6$ oe	24	2	M1 accept 36 – 12 A1
				Total 8 marks

13. (a)	48 ÷ 0.32 oe	150	3	M2 (M1 for 48x100 or 32/100 i.e attempt to have equal units) A1
(b)	$72 \div 1\frac{1}{3}$ oe	54	3	M2 accept 72 ÷ 1.33 (2dp or better) or 0.9 x 60 (B1 M0 for 72 ÷ 1.2(0){=60} or 72 ÷80{=0.9} or 72 ÷1.3 {=55.4}or better) A1 cao
				Total 6 marks

14.		Intersecting arcs from P and Q Perpendicular bisector joining arcs	2	B1 arcs must intersect above and below line PQ B1 dep
				Total 2 marks

15. (a)	15÷6 (=2.5) or 6÷15 (=0.4) or 230÷6 (=38.33) or 200÷6 (=33.33) or 6÷230 (=0.026) or 6÷200 (=0.03) 230 x "15/6" or 200 x "15/6" oe	apples = 575 & raspberries = 500	3	M1 M1 dep (i.e "correct" calculation for apples OR raspberries) A1 both correct SC M1M1A0 if answers wrong way round with/without working

(b)	120+230+200+160+90 (=800) 160/ "800"	1/5	3	M1 M1 dep A1 cao SC B2 for 0.2, 20% , 2/10 no working
				Total 6 marks

16. (a)	6.3 → 6.5 (inclusive) x 5	31.5 → 32.5 inclusive	2	M1 A1
(b)		076 → 080 inclusive	1	B1 leading zero not necessary
(c)		256 →260 inclusive	1	B1 ft from (b) if (b) is acute {180 + (b) oe}
(d)	1 bearing line or 1 arc drawn correctly from A or B	Cross in correct position	2	M1 A1 dep on M1 (see overlay)
				Total 6 marks

17. (a)	3 (5) 7 5 7 9 7 9 11		2	B1 for 1 row or 1 column correct B2 fully correct 8 values
(b)		"3"/9 3/9oe	2	M1 their number of 7's and denominator of 9 A1
				Total 4 marks

18.		fully correct line from $-2 \le x \le +2$ line from $-2 \le x \le +2$ with grad 2 or y intercept (0,-1) 3 correct points, calculated or plotted 2 correct points, calculated or plotted	4	B4 line passes through (−2, −5) & (2, 3) B3 B2 e.g 3 from (−3,−7) ((−2, −5) (−1,−3) (0,−1) (1, 1) (2, 3) (3, 5) B1 e.g 2 from (−3,−7) ((−2, −5) (−1,−3) (0,−1) (1, 1) (2, 3) (3, 5)
				Total 4 marks

19.	15/100 x 640 (=96) 640 – "96"	544	3	M1 M1 dep or M2 for 640 x 0.85 A1
				Total 3 marks

20. (a)	120 – 90 (=30)	30/120 oe	2	M1 A1	
(b)	"30/120" X 200 oe	50	2	M1 ft A1 ft	or 200 – "90/120" x 200 (i.e "heads/120" x 200) ft if ans < 200 50/200 No working = M1A0
					Total 4 marks

21.	Use of sin 42 or cos 48 9.3 x sin 42 or 9.3 cos 48	6.22	3	M1 M1 A1 awrt 6.22	$9.3^2 - (9.3 \cos 42)^2$ (=38.72..) $\sqrt{}$("38.72") (M1 dep) 6.22(2914...)
					Total 3 marks

22.	6 x 5 (= 30) or 3+2+7+6+2 (=20) or (3+2+7+6+2 + "*x*")/6 =5 "30" – "20"	10	3	M1 M1 A1	
					Total 3 marks

23. (i)		136.5	1	B1	
(ii)		137.5 or 137.499..	1	B1	At least 137.499 or better
					Total 2 marks

24.	A product of 3 or more factors of which 2 are from 2,3,3,7 All 4 correct prime factors & no extras (ignore 1's)	2, 3, 3, 7 or 2, 3, 3, 7, 1 or 2x3x3x7x1 2 x 3 x 3 x 7	3	M1 A1 A1	e.g 2 x 3 x 21 must multiply to 126 could be implied from a factor tree or division ladder could be implied from a factor tree or division ladder any order, do not accept inclusion of 1's
					Total 3 marks

25.	$5x \geq 22 - 7$	$x \geq 3$	2	M1 A1	can be 5x=22 – 7 or 5x > 22 – 7 only if answer line has a correct inequality mark expression on answer line do not isw.
					Total 2 marks

26.	Eliminate 1 variable correctly	$x=4$ $y=3.5$	3	M1 i.e. $7x = 28$ or $14y = 49$ A1 A1 No working M0 A0 A0
				Total 3 marks

				TOTAL FOR PAPER: 100 MARKS

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