



# 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
				<b>Total 3 marks</b>
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
				<b>Total 6 marks</b>
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
				<b>Total 4 marks</b>
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
				<b>Total 7 marks</b>

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5. (a)		$5.4 \pm 0.2$	1	B1	
(b)		(9, 7)	1	B1	
(c)	6 x 5	30		M1 A1	B2 for $29 \leq \text{area} \leq 31$ inclusive if counting squares B1 for $28 \leq \text{area} < 29$ or $31 < \text{area} \leq 32$ if counting squares
		Square cms or $\text{cm}^2$	3	B1 (ind)	
					<b>Total 5 marks</b>

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

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

8. (a) (i)		80	1	B1	
(a) (ii)		37 → 38 inclusive	1	B1	
(b)	$8 \times 175 \div 5$	280	2	M1 A1	
					<b>Total 4 marks</b>

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
					<b>Total 3 marks</b>

10.	$3/8 \times 120$ oe	45	2	M1 A1	accept $3 \times 15$ or $360 \div 8$
					<b>Total 2 marks</b>

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<b>11.</b>	$20 \div 5 \times 7$ oe	28	2	M1 accept $4 \times 7$ or $140 \div 5$ A1
				<b>Total 2 marks</b>

<b>12. (a) (i)</b>		28	1	B1
(ii)	$6y = 23 - 5$	3	2	M1 or $23 - 5 \div 6$ 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
				<b>Total 8 marks</b>

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

<b>14.</b>		intersecting arcs from P and Q perpendicular bisector joining arcs	2	B1 arcs must intersect above and below line PQ B1 dep
				<b>Total 2 marks</b>

<b>15. (a)</b>	$15 \div 6 (=2.5)$ or $6 \div 15 (=0.4)$ or $230 \div 6 (=38.33)$ or $200 \div 6 (=33.33)$ or $6 \div 230 (=0.026)$ or $6 \div 200 (=0.03)$  $230 \times "15/6"$ or $200 \times "15/6"$ 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
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(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
<b>Total 6 marks</b>					

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)	
<b>Total 6 marks</b>					

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 A1	their number of 7's and denominator of 9
<b>Total 4 marks</b>					

18.		4MA0   2011   May/June   Paper 2F   GradeMax fully correct line from $-2 \leq x \leq +2$ line from $-2 \leq x \leq +2$ with grad 2 or y intercept (0,-1) correct points, calculated or plotted correct points, calculated or plotted	4	B4 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)	line passes through (-2, -5) & (2, 3)
<b>Total 4 marks</b>					

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

20.	(a)	$120 - 90 (=30)$	$30/120$ oe	2	M1 A1
	(b)	"30/120" X 200 oe	50	2	M1 ft or $200 - "90/120" \times 200$ (i.e "heads/120" x 200) A1 ft ft if ans < 200 50/200 No working = M1A0
<b>Total 4 marks</b>					
21.		Use of $\sin 42$ or $\cos 48$ $9.3 \times \sin 42$ or $9.3 \cos 48$	6.22	3	M1 $9.3^2 - (9.3 \cos 42)^2 (=38.72..)$ M1 $\sqrt{"38.72"} (M1 \text{ dep})$ A1 awrt 6.22 6.22(2914...)
	<b>Total 3 marks</b>				
22.		$6 \times 5 (= 30)$ or $3+2+7+6+2 (=20)$ or $(3+2+7+6+2 + "x")/6 =5$ "30" – "20"	10	3	M1  M1 A1
	<b>Total 3 marks</b>				
23.	(i)		136.5	1	B1
	(ii)		137.5 or 137.499..	1	B1 At least 137.499 or better
<b>Total 2 marks</b>					
24.		A product of 3 or more factors of which 2 are from 2,3,3,7	2, 3, 3, 7 or 2, 3, 3, 7, 1 or $2 \times 3 \times 3 \times 7 \times 1$	3	M1 e.g $2 \times 3 \times 21$ must multiply to 126 could be implied from a factor tree or division ladder
		All 4 correct prime factors & no extras (ignore 1's)	$2 \times 3 \times 3 \times 7$		A1 could be implied from a factor tree or division ladder A1 any order, do not accept inclusion of 1's
<b>Total 3 marks</b>					
25.		$5x \geq 22 - 7$	$x \geq 3$	2	M1 can be $5x=22 - 7$ or $5x > 22 - 7$ only if answer line has a correct inequality A1 mark expression on answer line do not isw.
	<b>Total 2 marks</b>				

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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
				<b>Total 3 marks</b>

				<b>TOTAL FOR PAPER: 100 MARKS</b>
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