

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 $29 \leq \text{area} \leq 31$ inclusive if counting squares B1 for $28 \leq \text{area} < 29$ or $31 < \text{area} \leq 32$ if counting squares |
| | | Square cms or 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) | $8 \times 175 \div 5$ | 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. | $3/8 \times 120$ oe | 45 | 2 | M1 A1 | accept 3×15 or $360 \div 8$ |
| | | | | | Total 2 marks |

| | | | | |
|-----|-------------------------|----|---|--|
| 11. | $20 \div 5 \times 7$ oe | 28 | 2 | M1 accept 4×7 or $140 \div 5$ A1 |
| | | | | Total 2 marks |

| | | | | |
|-------------|-----------------------|--------|---|--|
| 12. (a) (i) | | 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 |
| | | | | Total 8 marks |

| | | | | |
|---------|---------------------------|-----|---|--|
| 13. (a) | $48 \div 0.32$ oe | 150 | 3 | M2 (M1 for 48×100 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 0.9×60 (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 |
| | | | | 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) | $15 \div 6 (=2.5)$ 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 |
|---------|--|----------------------------------|---|--|

| | | | | |
|-----|---|-----|---|---|
| (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 $-2 \leq x \leq +2$ line from $-2 \leq x \leq +2$ 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 or $200 - "90/120" \times 200$ (i.e "heads/120" x 200) A1 ft ft if ans < 200 50/200 No working = M1A0 |
| Total 4 marks | | | | | |
| 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...) |
| | Total 3 marks | | | | |
| 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 |
| | 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 | 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 |
| | Total 3 marks | | | | |
| 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. |
| | 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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Welsh Assembly Government

