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# Mark Scheme (Results)

## June 2011

## International GCSE
## Mathematics (4MA0) Paper 2F

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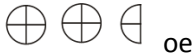
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# International GCSE Maths June 2011 – Paper 2F Mark scheme

| 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<br>A1 |
| (c) | |  oe | 1 | two full circles and one semi-circle or 10 quarter circles<br>B1 |
| (d) | 20/100 x 10 oe | 2 | 2 | M1<br>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<br><br><br><br> | <br>30<br><br>Square cms or $cm^2$ | <br><br><br>3 | M1<br>A1<br><br>B1 (ind) | B2 for 29 $\leq$ area $\leq$ 31 inclusive if counting squares<br>B1 for 28 $\leq$ area <29 or 31 < area $\leq$ 32 if counting squares |
| | | | | | **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 $\rightarrow$ 38 inclusive | 1 | B1 |
| (b) | 8 x 175 ÷ 5 | <br>280 | <br>2 | M1<br>A1 |
| | | | | **Total 4 marks** |

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

| | | | | |
|---|---|---|---|---|
| **10.** | 3/8 x 120 oe | <br>45 | <br>2 | M1 accept 3 x 15 or 360 ÷ 8<br>A1 |
| | | | | **Total 2 marks** |

| | | | | |
|---|---|---|---|---|
| **11.** | 20 ÷ 5 x 7 oe | 28 | 2 | M1 accept 4 x 7 or 140 ÷ 5<br>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<br>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<br>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)<br>A1 |
| (b) | 72 ÷ $1\frac{1}{3}$ oe | 54 | 3 | M2 accept 72 ÷ 1.33 (2dp or better) or 0.9 x 60<br>(B1 M0 for 72 ÷ 1.2(0){=60} or 72 ÷80{=0.9}<br>or 72 ÷1.3 {=55.4}or better)<br>A1 cao |
| | | | | **Total 6 marks** |

| | | | | |
|---|---|---|---|---|
| **14.** | | Intersecting arcs from P and Q<br>Perpendicular bisector joining arcs | 2 | B1 arcs must intersect above and below line PQ<br>B1 dep |
| | | | | **Total 2 marks** |

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

| | | | | |
|---|---|---|---|---|
| (b) | 120+230+200+160+90 (=800)<br>160/ "800" | 1/5 | 3 | M1<br>M1 dep<br>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<br>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<br>A1 dep on M1 (see overlay) |
| | | | | **Total 6 marks** |

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

| | | | | |
|---|---|---|---|---|
| **18.** | | fully correct line from $-2 \le x \le +2$<br>line from $-2 \le x \le +2$ with grad 2<br>or $y$ intercept (0,-1)<br>3 correct points, calculated or plotted<br>2 correct points, calculated or plotted | 4 | B4 line passes through (−2, −5) & (2, 3)<br>B3<br>B2 e.g 3 from (−3,−7) ((−2, −5) (−1,−3) (0,−1) (1, 1) (2, 3) (3, 5)<br>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)<br>640 – "96" | 544 | 3 | M1<br>M1 dep or M2 for 640 x 0.85<br>A1 |
| | | | | **Total 3 marks** |

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

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

| | | | | |
|---|---|---|---|---|
| **22.** | 6 x 5 (= 30) or 3+2+7+6+2 (=20)<br>or (3+2+7+6+2 + "*x*")/6 =5<br>"30" – "20" | 10 | 3 | M1<br><br>M1<br>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<br><br>All 4 correct prime factors & no extras (ignore 1's) | 2, 3, 3, 7 or 2, 3, 3, 7, 1 or 2x3x3x7x1<br>2 x 3 x 3 x 7 | 3 | M1<br><br>A1<br><br>A1 | e.g 2 x 3 x 21 must multiply to 126<br>could be implied from a factor tree or division ladder<br><br>could be implied from a factor tree or division ladder<br><br>any order, do not accept inclusion of 1's |
| | | | | | **Total 3 marks** |

| | | | | | |
|---|---|---|---|---|---|
| **25.** | 5 $x \geq 22 - 7$ | $x \geq 3$ | 2 | M1<br>A1 | can be 5x=22 – 7 or 5x > 22 – 7 only if answer line has a correct inequality<br>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 $14y = 49$<br>A1 A1 No working M0 A0 A0 |
| | | | | **Total 3 marks** |

| | | | | |
|---|---|---|---|---|
| | | | | **TOTAL FOR PAPER: 100 MARKS** |

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