

# Mark Scheme (Results) November 2009

IGCSE

IGCSE Mathematics (4400)  
Paper 1F Foundation Tier

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## November 2009 IGCSE Mathematics (4400) Mark Scheme - Paper 1F

| Q      | Working | Answer           | Mark | Notes         |
|--------|---------|------------------|------|---------------|
| 1. (a) |         | 1/3 oe           | 1    | B1 eg 2/6     |
| (b)    |         | 6 sectors shaded | 1    | B1            |
| (c)    |         | 2/5 oe           | 1    | B1 eg 40/100  |
|        |         |                  |      | Total 3 marks |

|        |  |    |   |               |
|--------|--|----|---|---------------|
| 2. (a) |  | 60 | 1 |               |
| (b)    |  | 16 | 1 |               |
| (c)    |  | 8  | 1 |               |
| (d)    |  | 11 | 1 |               |
|        |  |    |   | Total 4 marks |

|        |  |        |   |                                  |
|--------|--|--------|---|----------------------------------|
| 3. (a) |  | Kite   | 1 | B1 (Any recognisable spelling)   |
| (b)    |  | Obtuse | 1 | B1 (Any recognisable spelling)   |
| (c)    |  | 1      | 1 | B1                               |
| (d)    |  | 2      | 1 | B1 accept 2 times, twice, 2x etc |
|        |  |        |   | Total 4 marks                    |

|        |                |                     |   |                                     |
|--------|----------------|---------------------|---|-------------------------------------|
| 4. (a) |                | 5                   | 1 | B1                                  |
| (b)    |                | 24                  | 1 | B1 allow 23–24.5                    |
| (c)    |                | Ann                 | 1 | B1                                  |
| (d)    |                | Bar > 12.5 and < 15 | 1 | B1                                  |
| (e)    | 70/100 x 12 oe | 8.4(0)              | 2 | M1    M1 for 1.7 x 12 =(20.4)<br>A1 |
|        |                |                     |   | Total 6 marks                       |

|        |  |        |   |               |
|--------|--|--------|---|---------------|
| 5. (i) |  | Radius | 1 | B1            |
| (ii)   |  | Sector | 1 | B1            |
|        |  |        |   | Total 2 marks |

| Q  | Working                   | Answer | Mark | Notes            |
|----|---------------------------|--------|------|------------------|
| 6. | $3 \times 6 - 5 \times 2$ | 8      | 2    | M1 18 - 10<br>A1 |
|    |                           |        |      | Total 2 marks    |

|    |         |  |      |               |                                   |
|----|---------|--|------|---------------|-----------------------------------|
| 7. | (a)     |  | 2.5  | 1             | B1                                |
|    | (b)     | Arrange in order or 2.6 and 2.7 identified or $(6+1)/2 (=3.5)$ attempt to find middle position | 2.65 | 2             | M1 2.5 2.5 2.6 2.7 3.2 3.3<br>A1  |
|    | (c)     | $(2.5 + 2.5 + 2.6 + 2.7 + 3.2 + 3.3) \div 6$   | 2.8  | 2             | M1 16.8 $\div$ 6<br>A1            |
|    | (d) (i) |  | 1/6  | 1             | B1 accept .166, .17, 16.6% or 17% |
|    | (ii)    |  | 0    | 1             | B1 accept 0/6                     |
|    |         |  |      | Total 7 marks |                                   |

|    |     |                               |      |               |                    |
|----|-----|-------------------------------|------|---------------|--------------------|
| 8. | (a) | $6 \times 250 + 7 \times 100$ | 2200 | 2             | M1 1500 +700<br>A1 |
|    | (b) | "2200" $\div$ 1000            | 2.2  | 2             | M1<br>A1ft         |
|    | (c) | $10 - 5 \times 1.35$          | 3.25 | 2             | M1 10 - 6.75<br>A1 |
|    |     |                               |      | Total 6 marks |                    |

|    |  |  |    |               |             |
|----|--|--|----|---------------|-------------|
| 9. |  |  | 10 | 2             | B2 B1 for 9 |
|    |  |  |    | Total 2 marks |             |

| Q           | Working | Answer     | Mark | Notes                          |
|-------------|---------|------------|------|--------------------------------|
| 10. (a) (i) |         | 61.4656    | 1    | B1                             |
| (ii)        |         | 61.5       | 1    | B1ft must be $\geq 4$ sig figs |
| (b) (i)     |         | 8.45576... | 1    | B1                             |
| (ii)        |         | 8.46       | 1    | B1ft must be $\geq 3$ dp       |
|             |         |            |      | Total 4 marks                  |

|             |                                    |         |   |   |
|-------------|------------------------------------|---------|---|---|
| 11. (a) (i) |                                    | 19      | 1 | B1                                      |
| (ii)        | $55 = 3n - 5$ or $(55 + 5) \div 3$ |         |   | M1 allow for $55+5$ or $55/3$ (18.3rec) |
|             |                                    | 20      | 2 | A1                                      |
| (b)         |                                    | 5 , 6.2 | 2 | B2 B1 for 5 B1ft for "5" + 1.2          |
|             |                                    |         |   | Total 5 marks                           |

|         |                |                |   |   |
|---------|----------------|----------------|---|---|
| 12. (a) | $25 \times 30$ |                |   | M1  |
|         |                | 750            | 3 | A1  |
|         |                | m <sup>2</sup> |   | B1 (ind) square metres , metres squared etc |
| (b)     | $280 \div 4$   |                |   | M1  |
|         |                | 70             | 2 | A1  |
|         |                |                |   | Total 5 marks                               |

|         |  |   |   |   |
|---------|--|---|---|---|
| 13. (a) | $2 \times 1.50$<br>$5 + 2 \times 1.50$ |   |   | M1 (2 extra hours)  |
|         |  | 8 | 3 | M1  |
|         |  |   |   | A1 SC B1 for 18 ( $5 + 2 \times 6.5$ ) or 9.50 ( $5 + 3 \times 1.5$ ) |
| (b)     | $15.5 - 5$<br>"10.50" $\div 1.5$       |   |   | M1 10.50  |
|         |  | 8 | 3 | M1 (7 hours)  |
|         |  |   |   | A1sc B1 for $15.5 \div 1.5$ (=10.33.. or 11.33..) or 2.61..           |
|         |  |   |   | Total 6 marks   |

| Q             | Working   | Answer | Mark | Notes   |
|---------------|---|--------|------|---|
| 14. (a)       | $(2 \times 1) / (3 \times 4)$ or $2 / (3 \times 4)$                     | $2/12$ | 2    | B1<br>B2 or correct cancelling seen   |
| (b)           | $"x" / 15 + "y" / 15$ or $((2 \times 5) + (1 \times 3)) / (3 \times 5)$ |        | 2    | B1 denominators common multiple of 15<br>or $10/15$ or $3/13$ (accept $(2 \times 5) / 15$ or $(3 \times 1) / 15$ )<br>B1 correct answer equivalent to $13/15$ |
| Total 4 marks |   |        |      |   |

|               |   |    |   |  |
|---------------|---|----|---|--|
| 15. (a)       |   | 35 | 1 | B1   |
| (b)           | $8y - 5y = 3 + 9$<br>$3y = 12$ or $3y - 12 = 0$ | 4  | 3 | M1 correct gathering of terms<br>(can imply 1st M1)<br>A1 Answer only or embedded answer =MOAO |
| Total 4 marks |   |    |   |  |

|               |   |   |      |   |                    |
|---------------|---|---|------|---|--------------------|
| 16. (a)       | $360 \div 8 (=45)$<br>$(180 - "45") \div 2$ | $180 \times 6 / 8 (=135)$<br>$"135" \div 2$ | 67.5 | 3 | M1<br>M1 dep<br>A1 |
| (b)           | $360 \div 30$                               | $180 - 30 = 180(n-2) / n$                   | 12   | 2 | M1<br>A1           |
| Total 5 marks |   |   |      |   |                    |

|               |   |  |      |   |   |
|---------------|---|--|------|---|---|
| 17.           | $(1 \times 3) + (2 \times 2) + (3 \times 7) + (4 \times 13) + (5 \times 11)$<br>$"135" \div 36$ |  | 3.75 | 3 | M1 must see at least 3 correct products<br>M1 (dep)<br>A1 accept 4 with working |
| Total 3 marks |   |  |      |   |   |

|               |  |            |   |  |
|---------------|--|------------|---|--|
| 18. (a)       | $12x + 6(x + 2)$ oe                        | $18x + 12$ | 2 | B2 B1 for $12x$ or $6(x + 2)$ penalise errors  |
| (b)           | $"a" = 57$ $18x + 12 = 57$ or $45 \div 18$ | $2.5$      | 2 | M1ft $"a" =$ linear term $b x + c$ ( $c, b \neq 0$ )<br>A1 cao allow numerical methods |
| Total 4 marks |  |            |   |  |

| Q           | Working | Answer     | Mark | Notes                      |
|-------------|---------|------------|------|----------------------------|
| 19. (a) (i) |         | 3,7        | 1    | B1                         |
| (ii)        |         | 6          | 1    | B1                         |
| (b)         |         | 1, 2       | 1    | B1                         |
| (c)         |         | Black cats | 1    | B1 Cats that are black etc |
|             |         |            |      | Total 4 marks              |

|     |                                    |      |   |  |
|-----|------------------------------------|------|---|--|
| 20. | $4^2 + 6^2 (=52)$<br>$\sqrt{"52"}$ | 7.21 | 3 | M1<br>M1 (dep)<br>A1 7.21(11...) awrt 7.21 |
|     |                                    |      |   | Total 3 marks                              |

|         |   |      |   |   |
|---------|---|------|---|---|
| 21. (a) | $2 \times \pi \times 30$  | 188  | 2 | M1<br>A1 188(.495...)   |
| (b)     | $4.2^2 (=17.64)$<br>$\pi \times 2.1^2 (= 13.8\dots\dots)$<br>"4.2 <sup>2</sup> " - " $\pi \times 2.1^2$ " | 3.79 | 4 | M1<br>M1<br>M1 dep on both previous M1's<br>A1 Accept awrt 3.78 or 3.79 |
|         |   |      |   | Total 6 marks   |

|     |  |     |   |               |
|-----|--|-----|---|---------------|
| 22. | $0.1 + 0.05 + 0.05$ or $1 - (0.4 + 0.3 + 0.1)$ | 0.2 | 2 | M1<br>A1      |
|     |  |     |   | Total 2 marks |

|         |                    |              |   |   |
|---------|--------------------|--------------|---|---|
| 23. (a) | $2w - 6 + 3w + 15$ | $5w + 9$     | 2 | M1<br>A1 M1 for 3 correct terms               |
| (b)     | $x + 5 = 3x9$      | 22           | 2 | M1<br>A1 Answer only or embedded answer =MOA0 |
| (c)     | $5y < 6$           | $y < 6/5$ oe | 2 | M1<br>A1 Must be an inequality                |
|         |                    |              |   | Total 6 marks                                 |

| Q   | Working  | Answer | Mark | Notes   |
|-----|--|--------|------|---|
| 24. | $2 \times (0.5 \times 8 \times 15) + (17 \times 20) + (15 \times 20) + (8 \times 20)$<br>$2 \times 60 + 340 + 300 + 160$ | 920    | 3    | M1 1 correct face 60, 340, 300 or 160<br>M1 All correct faces added 120 $\neq$ 2x60<br>A1 |
|     |  |        |      | Total 3 marks   |
|     |  |        |      | <b>TOTAL FOR PAPER: 100 MARKS</b>   |





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