

Mark Scheme (Results) Summer 2010

GCSE

GCSE Mathematics (5384F)
Non-Calculator Paper 11F

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Publications Code UG024455

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NOTES ON MARKING PRINCIPLES

- 1 **Types of mark**
 M marks: method marks
 A marks: accuracy marks
 B marks: unconditional accuracy marks (independent of M marks)

- 2 **Abbreviations**
 cao - correct answer only
 isw - ignore subsequent working
 oe - or equivalent (and appropriate)
 indep - independent
 ft - follow through
 SC: special case
 dep - dependent

- 3 **No working**
 If no working is shown then correct answers normally score full marks
 If no working is shown then incorrect (even though nearly correct) answers score no marks.

- 4 **With working**
 If there is a wrong answer indicated on the answer line always check the working in the body of the script (and on any diagrams), and award any marks appropriate from the mark scheme.
 If working is crossed out and still legible, then it should be given any appropriate marks, as long as it has not been replaced by alternative work.
 If it is clear from the working that the “correct” answer has been obtained from incorrect working, award 0 marks. Send the response to review, and discuss each of these situations with your Team Leader.
 If there is no answer on the answer line then check the working for an obvious answer.
 Any case of suspected misread loses A (and B) marks on that part, but can gain the M marks. Discuss each of these situations with your Team Leader.
 If there is a choice of methods shown, then no marks should be awarded, unless the answer on the answer line makes clear the method that has been used.

- 5 **Follow through marks**
 Follow through marks which involve a single stage calculation can be awarded without working since you can check the answer yourself, but if ambiguous do not award.

Follow through marks which involve more than one stage of calculation can only be awarded on sight of the relevant working, even if it appears obvious that there is only one way you could get the answer given.

6 Ignoring subsequent work

It is appropriate to ignore subsequent work when the additional work does not change the answer in a way that is inappropriate for the question: e.g. incorrect canceling of a fraction that would otherwise be correct

It is not appropriate to ignore subsequent work when the additional work essentially makes the answer incorrect e.g. algebra.

Transcription errors occur when candidates present a correct answer in working, and write it incorrectly on the answer line; mark the correct answer.

7 Probability

Probability answers must be given as fractions, percentages or decimals. If a candidate gives a decimal equivalent to a probability, this should be written to at least 2 decimal places (unless tenths).

Incorrect notation should lose the accuracy marks, but be awarded any implied method marks.

If a probability answer is given on the answer line using both incorrect and correct notation, award the marks.

If a probability fraction is given then cancelled incorrectly, ignore the incorrectly cancelled answer.

8 Linear equations

Full marks can be gained if the solution alone is given on the answer line, or otherwise unambiguously indicated in working (without contradiction elsewhere). Where the correct solution only is shown substituted, but not identified as the solution, the accuracy mark is lost but any method marks can be awarded.

9 Parts of questions

Unless allowed by the mark scheme, the marks allocated to one part of the question CANNOT be awarded in another.

10 Range of answers

Unless otherwise stated, when an answer is given as a range (e.g. 3.5 - 4.2) then this is inclusive of the end points (e.g. 3.5, 4.2) and includes all numbers within the range (e.g. 4, 4.1)

| 5384F/11F | | | | |
|-----------|----------------------------|-----------------|------|--|
| Question | Working | Answer | Mark | Notes |
| 1 (a) | | 116 | 1 | B1 cao |
| (b) | | -11 | 1 | B1 cao |
| (c) | | 6.77 | 1 | B1 cao |
| (d) | | 5 | 1 | B1 cao |
| 2 (a) | | 6.5 | 1 | B1 for 6.5 ± 0.2 |
| (b) | | 35 | 1 | B1 for 35 ± 2 |
| 3 (a) | $\frac{44}{50}$ | $\frac{22}{25}$ | 2 | M1 for $\frac{44}{50}$ A1 for $\frac{22}{25}$ cao |
| (b) | $\frac{33}{50} \times 100$ | 66 | 2 | M1 for $\frac{33}{50} \times 100$ o.e. A1 cao or M1 for attempt to write 33 out of 50 as a fraction out of 100 or a decimal eg $\frac{33}{50} \times \frac{2}{2}$ or $\frac{66}{100}$ or 0.66 A1 cao |

| Question | Working | Answer | Mark | Notes |
|----------|---|--------------------------------|------|--|
| 4 | | L1R3 (L2R1) L3R4 L4R2 | 2 | B2 for all correct (B1 for 1 correct) |
| 5 | $42 - 12 = 30$ $30 \div 2 = 15$ | 15 | 2 | M1 for $42 - 12 \div 2$ oe A1 cao or M1 for $2x + 12 = 42$ oe A1 cao or M1 for a correctly labelled flow diagram/number machine A1 cao SC B1 for 9 |
| 6 | $55 \div 5 = 11, 11 \times 7$ or $55 \times 7 = 385, 385 \div 5$ | 77 | 2 | M1 for $55 \div 5$ or 11 seen or 5×7 or 385 seen A1 for 77 or £0.77(p) |
| 7 | (a) $2x + x + x$ | Explanation | 1 | B1 for $2x + x + x$ oe seen |
| | (b) | 7 | 2 | M1 for $28 \div 4$ oe or $4x = 28$ A1 cao |

| Question | Working | Answer | Mark | Notes |
|----------|--|------------------|------|--|
| 8 (a) | | Accurate drawing | 2 | B2 cao (any orientation) $\pm 2\text{mm}$ (B1 for any isometric drawing of a cuboid) Ignore presence of hidden lines |
| (b) | 3×4 | 12 | 2 | M1 for a correct method to find the area of one 'face' of the cuboid A1 cao or ft from (a) |
| 9 (a) | $600 + 500 + 600 + 500 = 2200$ | 2.2(00) | 3 | M1 for Σ weights or digits 22 M1 for '2200' $\div 1000$ A1 for 2.2(00) or 2 kg 200g |
| (b) | $2.79 + 1.85 + 1.85 = 6.49$ | 6.49 | 2 | M1 for $2.79 + 1.85 + 1.85$ oe or $279 + 185 + 185$ oe or 649 seen A1 for 6.49 SC B1 for 4.64 |
| 10 (a) | | m^3 | 1 | B1 cao |
| (b) | $2 \times 5 + 12$ | 22 | 2 | M1 for 2×5 or 10 seen A1 cao |
| (c) | $22 = 4w - 2$ $w = (22 + 2) \div 4$ | 6 | 2 | M1 for $22 = 4w - 2$ or $22 + 2 \div 4$ oe A1 cao |

| Question | Working | Answer | Mark | Notes |
|----------|---|---------|------|--|
| 11 (a) | 4×6 | 24 | 2 | M1 for 4×6 A1 cao |
| (b) | $24 \div 6 = 4$ $4 \div 2 = 2$ | 2 | 2 | M1 for '24' $\div 6 \div 2$ oe eg '24' $\div 12$ A1 (ft) |
| 12 (i) | $180 - 110 = 70$ $180 - 2 \times 70$ | 40 | 4 | M1 for $180 - 110$ or 70 seen M1 for $180 - 2 \times "70"$ or $110 - '70'$ A1 cao |
| (ii) | | Reasons | | B1 for two out of three of: angles on a (straight) line add to 180° ; isosceles triangle (accept 2 sides equal or 2 angles equal); sum of angles in a triangle is equal to 180° OR B1 for two out of three of: angles on a (straight) line add to 180° ; isosceles triangle (accept 2 sides equal or 2 angles equal); exterior angle of a triangle is equal to the sum of the opposite interior angles |

| Question | Working | Answer | Mark | Notes |
|----------|--|--------|------|--|
| 13 | $300 \div 6 = 50$ $300 \div 10 \times 3 = 90$ $300 - 50 - 90$ or $\frac{1}{6} + \frac{3}{10} = \frac{7}{15}$ $\frac{7}{15} \times 300 = 140$ $300 - 140$ | 160 | 4 | M1 for $300 \div 6$ or 50 seen M1 for $300 \div 10 \times 3$ oe or $30 + 30 + 30$ or 90 seen M1 (dep on at least 1 previous M1) for 300 - "50" - "90" A1 cao or M1 for $\frac{1}{6} + \frac{3}{10}$ or $\frac{7}{15}$ oe M1 for " $\frac{7}{15}$ " \times 300 or 140 seen or 1 - " $\frac{7}{15}$ " or $\frac{8}{15}$ o.e. seen M1 (dep on at least 1 previous M1) for 300 - '140' or 160 seen or " $\frac{8}{15}$ " \times 300 A1 cao |

| Question | Working | Answer | Mark | Notes |
|----------|---|--------------|------|--|
| 14 | $40 \div (2 + 3) = 8$ 8×2 8×3 | 16, 24 | 3 | M1 for $40 \div (2 + 3)$ oe or 8 seen or $\frac{2}{5}$ seen or $\frac{3}{5}$ seen or listing at least 3 multiples of 2 and 3 M1 for '8' $\times 2$ or '8' $\times 3$ oe A1 for 16 and 24 in correct places SC : B2 for 24, 16 SC: If M0 scored, B1 for just one correct answer in the correct place |
| 15 (a) | | 3, -3, -1 | 2 | B2 for all 3 correct (B1 for 1 or 2 correct) |
| (b) | | Graph | 2 | B2 for a fully correct graph or B1 ft for "7 points" plotted correctly ± 2 mm B1 for smooth curve drawn through their points provided B1 awarded in (a) |
| (c) | | -2.3 and 1.3 | 1 | B1 for -2.3 and 1.3 or ft ± 2 mm on a graph with exactly 2 points of intersection with the x axis |

| Question | Working | Answer | Mark | Notes |
|----------|---|---|------|--|
| 16 | | Triangle at (1,-2), (-1, -2), (1, -5) | 2 | B2 for triangle at (1, -2), (-1, -2), (1, -5) (B1 for rotation of 180° about the wrong centre) or for a rotation of 90° , centre (1,0) clockwise or anticlockwise. |
| 17 | | Translation by $\begin{pmatrix} 3 \\ -2 \end{pmatrix}$ | 2 | B1 for translation B1 (indep) for $\begin{pmatrix} 3 \\ -2 \end{pmatrix}$ or 3 to the right and 2 down oe Note: B0 if more than one transformation given. |
| 18 | $8x - 12 = 5x + 7$ $8x - 5x = 7 + 12$ $3x = 19$ | $\frac{19}{3}$ oe | 3 | M1 for $4 \times 2x - 4 \times 3$ or $8x - 12$ seen or an intent to divide by 4 throughout eg $\frac{5x+7}{4}$ oe seen M1 for correct method to isolate terms in x and isolate number terms on opposite sides of a 4 term equation eg ' $8x$ ' - $5x = 7 +$ ' 12 ' or $3x = 19$ A1 for $\frac{19}{3}$ oe (accept 6.33 or better) |

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June 2010

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