



**General Certificate of Secondary Education
November 2012**

**Mathematics (Linear) B
Paper 1
Foundation Tier**

4365

Final

Mark Scheme

Mark schemes are prepared by the Principal Examiner and considered, together with the relevant questions, by a panel of subject teachers. This mark scheme includes any amendments made at the standardisation meeting attended by all examiners and is the scheme which was used by them in this examination. The standardisation meeting ensures that the mark scheme covers the candidates' responses to questions and that every examiner understands and applies it in the same correct way. As preparation for the standardisation meeting each examiner analyses a number of candidates' scripts: alternative answers not already covered by the mark scheme are discussed at the meeting and legislated for. If, after this meeting, examiners encounter unusual answers which have not been discussed at the meeting they are required to refer these to the Principal Examiner.

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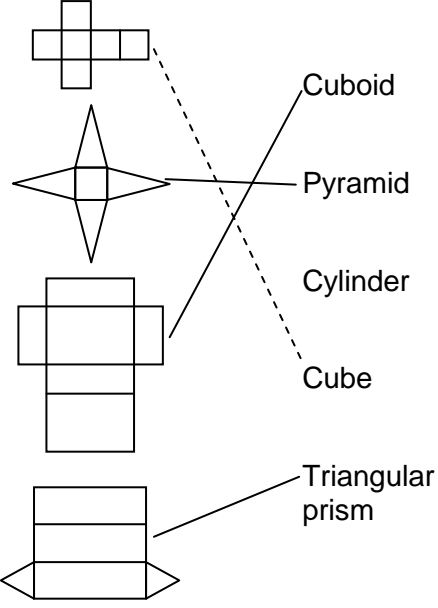
Glossary for Mark Schemes

GCSE examinations are marked in such a way as to award positive achievement wherever possible. Thus, for GCSE Mathematics papers, marks are awarded under various categories.

- M** Method marks are awarded for a correct method which could lead to a correct answer.
- M_{dep}** A method mark dependent on a previous method mark being awarded.
- A** Accuracy marks are awarded when following on from a correct method. It is not necessary to always see the method. This can be implied.
- B** Marks awarded independent of method.
- B_{dep}** A mark that can only be awarded if a previous independent mark has been awarded.
- Q** Marks awarded for quality of written communication. (QWC)
- ft** Follow through marks. Marks awarded following a mistake in an earlier step.
- SC** Special case. Marks awarded within the scheme for a common misinterpretation which has some mathematical worth.
- oe** Or equivalent. Accept answers that are equivalent.
eg, accept 0.5 as well as $\frac{1}{2}$
- [a, b]** Accept values between *a* and *b* inclusive.

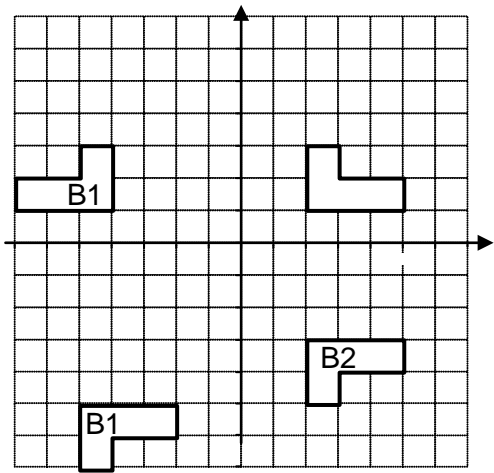
Paper 1 Foundation Tier

| Q | Answer | Mark | Comments |
|------|---|------|---|
| 1(a) | (1, 6) | B1 | |
| 1(b) | Mark at (6, 4) | B1 | Accept cross, dot etc Mark must be intended to be on line BC |
| 1(c) | $2 \times \text{their } 4 + 2 \times \text{their } 5$ or $8 + 10$ | M1 | 4 or 5 must be correct |
| | 18 | A1 | SC1 22 |
| 2(a) | 323 | B1 | |
| 2(b) | 155 | B1 | |
| 2(c) | 520 | B1 | |
| 2(d) | 23 | B1 | |
| 3 | (£) 3.60(p) or 360p in total column | B1 | Condone 3.60 but not 360 without units |
| | (£) 1.20(p) or 120p in first column | B1ft | ft their cost of coffees $\div 3$ |
| 4(a) | - 1 | B1 | |
| 4(b) | 175 | B1 | |

| Q | Answer | Mark | Comments |
|------|--|------|--|
| 5 |  <p>The diagram shows five nets with labels: <ul style="list-style-type: none"> Cuboid: A net consisting of six rectangles arranged in a cross shape. Pyramid: A net consisting of a square base and four triangles meeting at a central point. Cylinder: A net consisting of two rectangles and two circles. Cube: A net consisting of six squares arranged in a cross shape. Triangular prism: A net consisting of two triangles and three rectangles. </p> | B3 | B2 any two correct B1 any one correct |
| 6(a) | 12 | B1 | |
| 6(b) | 35 | B1 | |
| 6(c) | Men's bar 16 and Women's bar 24 | B2 | B1 for correct height of either bar or for any two bars that add up to 40 or for any two bars with a difference of 8 or for $2x + 8 = 40$ or $2x - 8 = 40$ (oe) |
| 6(d) | $(10 + 15 (= 25)) \times 5 (= 125)$ | M1 | 25 not from incorrect working |
| | Their $125 - 30$ | M1 | 19×5 is M2 |
| | 95 | A1 | |
| 7(a) | 3 | B1 | Answer may be seen in Output box if answer line blank |
| 7(b) | 50 | B2 | B1 for $8 + 2 (= 10)$ (may be seen on diagram) or for their 10×5 (may be seen on diagram) or for reverse diagram or reverse operations shown in order SC1 input of 2 or 30 or -0.4 |

| Q | Answer | Mark | Comments |
|--------|--|------|--|
| 8 | 20, 20, 10, 5 and 50, 2, 2, 1 | B3 | B2 50, 5 and 20, 20, 10, 2, 2, 1 B1 for 110 or (£)1.10 or 55 seen (Could be implied by Ben or Yusuf's money totalling 55p) |
| 9(a) | 60(%) | B1 | |
| 9(b) | $\frac{8}{10}$ $\frac{20}{25}$ | B2 | B1 for 1 correct answer with at most 1 incorrect answer or for 2 correct and 1 incorrect |
| 9(c) | $70 \div 10 \times 4$ | M1 | oe |
| | 28 | A1 | SC1 answer of 42 without 28 seen |
| *10 | $800 \div 10 (= 80)$ or $800 \div 5 (= 160)$ | M1 | oe |
| | $800 \div 10 (= 80)$ and $800 \div 5 (= 160)$ or their tax = $2 \times$ their insurance | M1 | 240 is M2 |
| | 560 | A1 | |
| | Complete method for finding the money left | Q1 | Strand (iii) Must have gained one M1 and have subtracted the total of their two values from 800 |
| | Alternative method | | |
| | $\frac{1}{10} + \frac{1}{5} (= 0.3)$ | M1 | oe |
| | Their $0.3 \times 800 (= 240)$ | M1 | oe |
| | 560 | A1 | |
| | Complete method for finding the money left | Q1 | Strand (iii) Must have gained one M1 and have subtracted the total from 800 |
| 11(a) | $6a$ | B1 | Accept $6 \times a$ or $a \times 6$ but not $a6$ |
| *11(b) | $6mp$ | Q1 | Strand (i) Accept $6pm$ but not with \times signs $pm6$ or $mp6$ or $6(mp)$ Q0 |

| Q | Answer | Mark | Comments |
|----|---|-------|---|
| 12 | Adds at least 4 fence sections using both sizes and gives a total Must use correct multiples < 36 | M2 | M1 At least two of 10, 15, 20, 25, 30, 35, 16, 24, 32 Can use diagrams or tally marks |
| | 4 @ 5-foot lengths 2 @ 8-foot lengths | A1 | SC2 20 @ 5-foot and 16 @ 8-foot SC2 8 8 5 5 5 5 |
| | Alternative method 1 | | |
| | Adds together 5 and 8 (= 13) and Subtracts multiple(s) of their 13 from 36 eg $36 - 13 (= 23)$ or $36 - 26 (= 10)$ | M1 | |
| | Tests the remainder against 5 or 8 times table eg $10 = 2 \times 5$ | M1dep | |
| | 4 @ 5-foot lengths 2 @ 8-foot lengths | A1 | |
| | Alternative method 2 | | |
| | Subtracts a multiple of 8 from 36 and divides remainder by 5 eg $36 - 8 = 28$, $28 \div 5$ | M1 | Subtracts a multiple of 5 from 36 and divides remainder by 8 eg $36 - 5 = 31$, $31 \div 8$ |
| | Repeats for a different multiple of 8 | M1dep | Repeats for a different multiple of 5 |
| | 4 @ 5-foot lengths 2 @ 8-foot lengths | A1 | |
| 13 | 14 and 22 chosen or their 22 – their 14 with either correct | M1 | |
| | 8 | A1 | |
| 14 | 4×-2 (+) 3×5 or -8 or 15 | M1 | oe |
| | 7 | A1 | |

| Q | Answer | Mark | Comments |
|-------|---|------|--|
| 15 | $5x - 15 - 2x + 2$ | M1 | Attempt to expand both brackets to 4 terms with at least 3 correct |
| | $5x - 15 - 2x + 2$ | A1 | A1 if fully correct |
| | $3x - 13$ | A1ft | ft on one error |
| 16(a) | 5 | B1 | |
| 16(b) | 46 | B1 | Not 4 6 |
| 16(c) | 38 | B1 | Not 3 8 |
| 17(a) | 64 | B1 | |
| 17(b) | 116 | B1 | |
| 17(c) | Corresponding | B1 | Any unambiguous indication eg circles correct word |
| 18(a) | Translation and 7 right, 2 down or $\begin{pmatrix} 7 \\ -2 \end{pmatrix}$ | B2 | B1 Translation or 7 right or $7 \rightarrow$ or $\begin{pmatrix} 7 \\ y \end{pmatrix}$ or 2 down $2 \downarrow$ or $\begin{pmatrix} x \\ -2 \end{pmatrix}$ or $\begin{pmatrix} -7 \\ 2 \end{pmatrix}$ or $\begin{pmatrix} -2 \\ 7 \end{pmatrix}$ or $(7, -2)$ |
| 18(b) |  | B2 | B1 for reflection of shape B in $x = -1$ or for reflection of shape A in $y = -1$ or for reflection of B in the bottom right quadrant, including reflection in the x -axis |

| Q | Answer | Mark | Comments |
|-------|--|------|---|
| 19(a) | Fills in totals on grid for at least 3 correct 9s | M1 | |
| | 9 | A1 | $\frac{8}{64}$ is A0 even if 9 stated |
| | Alternative method | | |
| | Identifies 9 as most likely total eg (1, 8), (2, 7), (7, 2) etc for at least 3 totals | M1 | |
| | 9 | A1 | $\frac{8}{64}$ is A0 even if 9 stated |
| 19(b) | Fills in 4, 5 or 6 correct totals on grid for 2, 3, 15 and 16 | M1 | Identifies at least 4 of (1, 1), (1, 2), (2, 1), (7, 8), (8, 7) or (8, 8) with no wrong pairs Need not be as a bracket eg 1 + 1 Totals need not be seen |
| | Denominator of 64 or numerator of 6 | M1 | 64 choices identified |
| | $\frac{6}{64}$ | A1 | Any fraction, decimal (0.09375) or percentage equivalent to $\frac{6}{64}$ is M2A1 |
| | Alternative method | | |
| | $\frac{1}{8} \times \frac{1}{8}$ | M1 | |
| | $6 \times \frac{1}{8} \times \frac{1}{8}$ | M1 | oe |
| | $\frac{6}{64}$ | A1 | oe |

| Q | Answer | Mark | Comments |
|----|--|-------|--|
| 20 | $6x + 2x + 6x + 2x (=16x)$ | M1 | |
| | Their $16x = 24$ | M1dep | $8x = 12$ is M2 |
| | 1.5 (oe) or 9 after 1.5 seen | A1 | oe SC1 $14x = 24$ leading to $x = 24/14$ oe |
| | Alternative method | | |
| | Guess a value and multiplies correctly by 16 | M1 | $x = 1$ gives 16 $x = 2$ gives 32 |
| | Guesses a second value nearer to or brackets the correct answer and multiplies correctly by 16 | M1dep | |
| | 1.5 or 9 after 1.5 seen | A1 | oe |
| 21 | (Angle $ADB =$) $90 - 50 (=40)$ or (Angle $ADB =$) $180 - (90 + 50) (=40)$ | M1 | May be on diagram Accept $D = 40$ or obtuse angle at D marked or labelled as 140 |
| | $(180 - \text{Their } CDB) \div 2$ or their $ADB \div 2$ | M1dep | Their CDB must be from $180 -$ their ADB Must be complete method |
| | 20 | A1 | |
| | Alternative method | | |
| | $50 + y + y = 90$ | M1 | oe $90 + 50 + y + y = 180$ |
| | $2y = 40$ | M1 | $y = (180 - 140) \div 2$ |
| | 20 | A1 | |