

## UNIT 1: NON-CALCULATOR, FOUNDATION TIER

### GENERAL INSTRUCTIONS for MARKING GCSE Mathematics

1. The mark scheme should be applied precisely and no departure made from it. Marks should be awarded directly as indicated and no further subdivision made.

2. Marking Abbreviations

The following may be used in marking schemes or in the marking of scripts to indicate reasons for the marks awarded.

cao = correct answer only

MR = misread

PA = premature approximation

bod = benefit of doubt

oe = or equivalent

si = seen or implied

ISW = ignore subsequent working

F.T. = follow through ( ✓ indicates correct working following an error and ✗✗ indicates a further error has been made)

Anything given in brackets in the marking scheme is expected but, not required, to gain credit.

3. Premature Approximation

A candidate who approximates prematurely and then proceeds correctly to a final answer loses 1 mark as directed by the Principal Examiner.

4. Misreads

When the data of a question is misread in such a way as not to alter the aim or difficulty of a question, follow through the working and allot marks for the candidates' answers as on the scheme using the new data.

This is only applicable if a wrong value, is used consistently throughout a solution; if the correct value appears anywhere, the solution is not classed as MR (but may, of course, still earn other marks).

5. Marking codes

- 'M' marks are awarded for any correct method applied to appropriate working, even though a numerical error may be involved. Once earned they cannot be lost.
- 'm' marks are dependant method marks. They are only given if the relevant previous 'M' mark has been earned.
- 'A' marks are given for a numerically correct stage, for a correct result or for an answer lying within a specified range. They are only given if the relevant M/m mark has been earned either explicitly or by inference from the correct answer.
- 'B' marks are independent of method and are usually awarded for an accurate result or statement.
- 'S' marks are awarded for strategy
- 'E' marks are awarded for explanation
- 'U' marks are awarded for units
- 'P' marks are awarded for plotting points
- 'C' marks are awarded for drawing curves

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| GCSE Mathematics<br>Unit 1: Foundation Tier  | Mark   | Comments  |
|--|--|---|
| <p>1. (Cost of tickets =) <math>2 \times (£)15 + (£)13 + (£)5</math><br/> <math>= (£)48</math></p> <p>(Change =) <math>(£)60 - (£)48</math><br/> <math>= (£)12</math></p> <p>Organisation and communication<br/>           Accuracy of writing</p> | <p>M1<br/>A1</p> <p>M1<br/>A1</p> <p>OC1<br/>W1</p> <p>6</p> | F.T. £60 – ‘their £48’  |
| <p>2. (a) Hexagon<br/>           (b) Isosceles triangle<br/>           (c) TRUE<br/>           FALSE<br/>           TRUE<br/>           TRUE<br/>           FALSE</p>  | <p>B1<br/>B1<br/>B2</p> <p>4</p>                             | B1 for 4 correct  |
| <p>3. (a) <math>1/3</math><br/>           (b) 11<br/>           (c) <math>3\frac{3}{4}</math></p>  | <p>B1<br/>B1<br/>B1<br/>3</p>                                |   |
| <p>4. (a) (i) impossible.<br/>           (ii) unlikely.</p> <p>(b) 7<br/>           Any number greater than 100.</p>   | <p>B1<br/>B1</p> <p>B1<br/>B1<br/>4</p>                      |   |
| <p>5. (a) A (7, 2) B (–3, –2) C (1, –6)<br/>           (b) Mid-point (4, –2)</p>   | <p>B3<br/>B1<br/>4</p>                                       | B1 for each   |
| <p>6. (a) 9</p> <p>(b) (i) <math>35 - 10</math><br/>           (ii) <math>13 \times 50</math> or <math>50 \times 13</math></p>   | <p>B3<br/>B1<br/>B1<br/>5</p>                                | <p>B2 for meeting any three clues e.g. 1, 3, 15, 81, .....<br/>           (or 3, 15, 81, (from not including 1 and 20)<br/>           B1 for meeting any two clues<br/>           e.g. 1, 4, 5, 6, 7, 11, 12, .....</p> |
| <p>7. (Area =) <math>8 \times 3</math><br/> <math>= 24</math><br/> <math>m^2</math></p>  | <p>M1<br/>A1<br/>U1<br/>3</p>                                | Independent of other marks  |
| <p>8. <math>a = 3</math><br/> <math>b = 5</math><br/> <math>c = -2</math></p>  | <p>B1<br/>B1<br/>B1<br/>3</p>                                | <p>C.A.O.<br/>           F.T. <math>(13 - a) / 2</math><br/>           F.T. <math>6 - a - b</math></p>  |

| GCSE Mathematics<br>Unit 1: Foundation Tier |  |      |            |      |      | Mark | Comments   |    |   |      |      |  |  |  |  |    |  |
|---|--|------|------------|------|------|------|--|----|---|------|------|--|--|--|--|----|--|
| 9. (a)                                      | 200  |      |            |      |      | B2   | B1 for sight of 25 or 8  |    |   |      |      |  |  |  |  |    |  |
| (b)   | 0.18   |      |            |      |      | B1   |  |    |   |      |      |  |  |  |  |    |  |
| (c)   | 3.45   |      |            |      |      | B1   |  |    |   |      |      |  |  |  |  |    |  |
| (d)   | Correctly using common denominator.<br>5/8 or equivalent.  |      |            |      |      | M1   | M1 for 0.875 – 0.25  |    |   |      |      |  |  |  |  |    |  |
|   |  |      |            |      |      | A1   | A1 for 0.625   |    |   |      |      |  |  |  |  |    |  |
|   |  |      |            |      |      | 6    |  |    |   |      |      |  |  |  |  |    |  |
| 10. (a)                                     | 2 and – 7  |      |            |      |      | B2   | B1 for 2   |    |   |      |      |  |  |  |  |    |  |
| (b)   | 2x – 3y  |      |            |      |      | B2   | Must be in an expression for B2  |    |   |      |      |  |  |  |  |    |  |
|   |  |      |            |      |      | 4    | B1 for 2x or –3y   |    |   |      |      |  |  |  |  |    |  |
| 11(a)                                       | 120 cm <sup>2</sup>  |      |            |      |      | B1   |  |    |   |      |      |  |  |  |  |    |  |
| (b)   | 20°  |      |            |      |      | B1   |  |    |   |      |      |  |  |  |  |    |  |
| (c)   | 30 m <sup>3</sup>  |      |            |      |      | B1   |  |    |   |      |      |  |  |  |  |    |  |
|   |  |      |            |      |      | 3    |  |    |   |      |      |  |  |  |  |    |  |
| 12.   | <table border="1"><tr><td>(+)6</td><td>(+)3</td><td>0</td><td>(–3)</td><td>(–6)</td></tr><tr><td>–6</td><td>–3</td><td>0</td><td>(+3)</td><td>(+6)</td></tr></table> | (+)6 | (+)3       | 0    | (–3) | (–6) | –6   | –3 | 0 | (+3) | (+6) |  |  |  |  | B2 | For 6 correct entries otherwise,<br>B1 for the two zeros OR B1 for the (+)6 AND (+)3 |
| (+)6  | (+)3   | 0    | (–3)       | (–6) |      |      |  |    |   |      |      |  |  |  |  |    |  |
| –6  | –3   | 0    | (+3)       | (+6) |      |      |  |    |   |      |      |  |  |  |  |    |  |
|   | (Probability > 0 =) 4/10 or equivalent.  |      |            |      |      | B2   | F.T. their table<br>B1 for a numerator of 4 OR a denominator of 10 in a fraction less than 1 |    |   |      |      |  |  |  |  |    |  |
|   | 4/10 × 70  |      |            |      |      | M1   | F.T. 'their 4/10'  |    |   |      |      |  |  |  |  |    |  |
|   | =28 (people)   |      |            |      |      | A1   |  |    |   |      |      |  |  |  |  |    |  |
|   |  |      |            |      |      | 6    |  |    |   |      |      |  |  |  |  |    |  |
| 13. (a)                                     | 7x – 2x = 11 + 4   |      |            |      |      | B1   | F.T. until 2 <sup>nd</sup> error   |    |   |      |      |  |  |  |  |    |  |
|   | 5x = 15  |      |            |      |      | B1   |  |    |   |      |      |  |  |  |  |    |  |
|   | x = 3  |      |            |      |      | B1   |  |    |   |      |      |  |  |  |  |    |  |
| (b)   | 6x + 21 = 9  | OR   | 2x + 7 = 3 |      |      | B1   |  |    |   |      |      |  |  |  |  |    |  |
|   | 6x = –12   | OR   | 2x = –4    |      |      | B1   | F.T. until 2 <sup>nd</sup> error   |    |   |      |      |  |  |  |  |    |  |
|   |  |      | x = –2     |      |      | B1   |  |    |   |      |      |  |  |  |  |    |  |
|   |  |      |            |      |      | 6    |  |    |   |      |      |  |  |  |  |    |  |

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|---|---------------------|--|
| 14. (a) False AND a counter example given.  | E1                  | Accept any equivalent intention to refer to both facts<br>E1 for reference to one of the two facts |
| (b) True AND a statement that refers to both<br>'one of the numbers will be even' and<br>'any integer multiplied an even number will result in<br>another even number.' | E2                  |  |
|   | 3                   |  |
| 15. Appropriate sight of $90^{(\circ)}$<br>Appropriate sight of $45^{(\circ)}$ or $90/2$<br>$x = 135^{(\circ)}$   | B1<br>B1<br>B1<br>3 | Implies 1 <sup>st</sup> B1<br>F.T. only from a clearly identifiable angle <i>LN</i>                |
| 16. 3, 6, 7, 8 OR 4, 5, 6, 9  | B2<br><br>2         | B1 for sum of four selected numbers = 24 OR<br>range of four selected numbers = 5                  |