

| Qn  | Working                                                                                                                                                              | Answer                 | Mark | Notes                                                                                                                                                            |
|-----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 a | e.g. $d - g = 2ac$<br>$\frac{d}{2c} = \frac{g}{2c} + a$                                                                                                              |                        |      | M1 for a correct first step eg subtract $g$ from both sides <b>OR</b> divide all terms by 2 <b>OR</b> divide all terms by $c$ <b>OR</b> divide all terms by $2c$ |
|     |                                                                                                                                                                      | $a = \frac{d - g}{2c}$ | 2    | A1 oe                                                                                                                                                            |
| b   |                                                                                                                                                                      | $3f(3e - 4)$           | 2    | B2<br>(B1 for $3(3ef - 4f)$ or $f(9e - 12)$ or $3f(ke - 4)$ or $3f(3e - m)$ where $k \neq 0$ and $m \neq 0$ )                                                    |
| c   | $x^2 - 5x + 2x - 10$                                                                                                                                                 |                        |      | M1 for any 3 correct terms <b>or</b> for 4 out of 4 correct terms ignoring signs <b>or</b> $x^2 - 3x \dots$<br><b>or</b> for $\dots - 3x - 10$                   |
|     |                                                                                                                                                                      | $x^2 - 3x - 10$        | 2    | A1                                                                                                                                                               |
| d   | $\frac{n^{11}}{n^5}$ <b>OR</b> $n^{-1} \times n^7$ <b>OR</b> $n^4 \times n^2$ <b>OR</b><br>$n^4 \times n^7 \times n^{-5}$ <b>OR</b> $n^{11} \div n^5 = n^{(11 - 5)}$ |                        |      | M1 for simplifying two terms                                                                                                                                     |
|     |                                                                                                                                                                      | $n^6$                  | 2    | A1                                                                                                                                                               |
|     |                                                                                                                                                                      |                        |      | <b>Total 8 marks</b>                                                                                                                                             |

|   |                                                                                 |                               |   |                                                                                                                                                                                                                                                                                         |
|---|---------------------------------------------------------------------------------|-------------------------------|---|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2 | (adding) $10x = -5$ or $21x + 35y = 42$<br>$21x - 15y = -33$<br>then $50y = 75$ |                               | 3 | M1 Correct method to eliminate $x$ or $y$ Or making coefficients of $x$ or $y$ the same <b>and</b> correct operator has been applied to eliminate $x$ or $y$ (2 out of 3 terms correct implies a correct operator) or correct algebraic substitution for $x$ or $y$ into other equation |
|   |                                                                                 | $x = -0.5$ oe<br>$y = 1.5$ oe |   | A1<br>A1 Both A marks dep on M1                                                                                                                                                                                                                                                         |
|   |                                                                                 |                               |   | <b>Total 3 marks</b>                                                                                                                                                                                                                                                                    |

|          |                      |                                                                                                                       |       |   |                                                                                                                                                                                                                                                                    |
|----------|----------------------|-----------------------------------------------------------------------------------------------------------------------|-------|---|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>3</b> | $(x \pm 9)(x \pm 4)$ | $\frac{-(-5) \pm \sqrt{(-5)^2 - 4 \times 1 \times (-36)}}{2 \times 1}$<br><b>or</b> $\frac{5 \pm \sqrt{25 + 144}}{2}$ |       |   | M1 <b>or</b> $(x + a)(x + b)$ where $ab = -36$ <b>or</b> $a + b = -5$<br><b>OR</b> correct substitution into quadratic formula<br>(condone one sign error in $a$ , $b$ or $c$ )<br>(if + rather than $\pm$ shown then award M1 only unless recovered with answers) |
|          | $(x - 9)(x + 4)$     | $\frac{5 \pm \sqrt{169}}{2}$ <b>or</b> $\frac{5 \pm 13}{2}$                                                           |       |   | M1 $\frac{5 \pm \sqrt{169}}{2}$ <b>or</b> $\frac{5 \pm 13}{2}$                                                                                                                                                                                                     |
|          |                      |                                                                                                                       | 9, -4 | 3 | A1 dep on at least M1                                                                                                                                                                                                                                              |
|          |                      |                                                                                                                       |       |   | <b>Total 3 marks</b>                                                                                                                                                                                                                                               |

|          |     |  |                                                           |   |                                                                                                                                                               |
|----------|-----|--|-----------------------------------------------------------|---|---------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>4</b> | (a) |  | $5^{19}$                                                  | 1 | B1                                                                                                                                                            |
|          | (b) |  |                                                           | 2 | M1 A factor tree / division ladder of 3 or more factors ( $\neq 1$ ), multiplying to 800, which must include 2 and 5. Condone 1 error when product $\neq 800$ |
|          |     |  | $2 \times 2 \times 2 \times 2 \times 2 \times 5 \times 5$ |   | A1 dep on M1 oe eg $2^5 \times 5^2$                                                                                                                           |
|          |     |  |                                                           |   | <b>Total 3 marks</b>                                                                                                                                          |

|          |                                                        |    |  |   |                                                              |
|----------|--------------------------------------------------------|----|--|---|--------------------------------------------------------------|
| <b>5</b> | $4x$ or $x - 7$                                        |    |  | 4 | M1 Correct expression for $B$ or $C$                         |
|          | $x + 4x + x - 7 = 137$ oe                              |    |  |   | M1 Correct equation                                          |
|          | $x = 144 \div 6 (=24)$ or $6x = 144$ or $6x - 144 = 0$ |    |  |   | M1 Gathering up the $x$ 's and numbers<br>Dep on previous M1 |
|          |                                                        | 17 |  |   | A1                                                           |
|          |                                                        |    |  |   | <b>Total 4 marks</b>                                         |

|          |     |  |                |   |      |                                                                         |
|----------|-----|--|----------------|---|------|-------------------------------------------------------------------------|
| <b>6</b> | (a) |  | 2, -1.5, -3, 0 | 2 | B2   | B1 for 2 or 3 values correct                                            |
|          | (b) |  |                | 2 | M1ft | At least 5 points plotted correctly ft from table dep on B1 in part (a) |
|          |     |  |                |   | A1   | For correct smooth curve.                                               |
|          |     |  |                |   |      | <b>Total 4 marks</b>                                                    |

|          |     |  |                   |   |    |                                                   |
|----------|-----|--|-------------------|---|----|---------------------------------------------------|
| <b>7</b> | (a) |  | -1, 0, 1, 2, 3, 4 | 2 | B2 | B1 for -2, -1, 0, 1, 2, 3, 4<br>or -1, 0, 1, 2, 3 |
|          |     |  |                   |   |    | <b>Total 2 marks</b>                              |

|          |   |                                                          |       |   |    |                                                                   |
|----------|---|----------------------------------------------------------|-------|---|----|-------------------------------------------------------------------|
| <b>8</b> | a |                                                          | 9     | 1 | B1 |                                                                   |
|          | b | $(g(2) =) \frac{4}{2+3} \left( = \frac{4}{5} \right)$ oe |       |   | M1 | or for sight of $fg(x)$ e.g. $\left( \frac{4}{x+3} - 4 \right)^2$ |
|          |   |                                                          | 10.24 | 2 | A1 | oe e.g. $\frac{256}{25}$                                          |
|          |   |                                                          |       |   |    | <b>Total 3 marks</b>                                              |

|          |                                     |     |   |    |                                                                                                                                                                             |
|----------|-------------------------------------|-----|---|----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>9</b> | e.g. $6(x - 1) (= 6x - 6)$          |     |   | M1 | method to find expression for perimeter of hexagon                                                                                                                          |
|          | e.g. $2(x + 5) + 2x - 3 (= 4x + 7)$ |     |   | M1 | method to find expression for perimeter of triangle                                                                                                                         |
|          | " $6x - 6$ " = " $4x + 7$ "         |     |   | M1 | (dep on at least M1) for equating both expressions                                                                                                                          |
|          | e.g. $6x - 4x = 7 + 6$              |     |   | M1 | (dep on previous M1 and equation of the form $ax + b = cx + d$ ) for rearranging the $x$ terms on one side and the numerical terms on the other and all expansions correct. |
|          |                                     | 5.5 | 5 | A1 | oe (dep on M2)                                                                                                                                                              |
|          |                                     |     |   |    | <b>Total 5 marks</b>                                                                                                                                                        |

|           |                                                                                                                                        |         |   |                                                                  |
|-----------|----------------------------------------------------------------------------------------------------------------------------------------|---------|---|------------------------------------------------------------------|
| <b>10</b> | e.g. $36 \div (2 + 6) (= 4.5)$ <b>or</b> $36 \div \frac{2+6}{3+2+6} (= 49.5)$ oe<br><b>or</b> Asha = £9 <b>OR</b> Julie = £27          |         |   | M1                                                               |
|           | e.g. $3 \times "4.5"$ <b>or</b> $"49.5" \times \frac{3}{3+2+6}$ <b>or</b> $"9" \times \frac{3}{2}$ <b>or</b> $"27" \times \frac{3}{6}$ |         |   | M1 or an answer of $\frac{27}{2}$                                |
|           |                                                                                                                                        | 13.5(0) | 3 | A1<br>SCB1 for $36/5 \times 7 (= 43.2)$ or $36/9 \times 2 (= 8)$ |
|           |                                                                                                                                        |         |   | <b>Total 3 marks</b>                                             |

|           |                                                                                                                                                                                                                                                                                                                                                                                                                               |       |   |                                                                                                                                                                                                                                                                        |
|-----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|---|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>11</b> | e.g. $\frac{16}{5}$ <b>and</b> $\frac{21}{8}$ oe                                                                                                                                                                                                                                                                                                                                                                              |       |   | M1 both fractions expressed as improper fractions                                                                                                                                                                                                                      |
|           | e.g. $\frac{16^2}{5} \times \frac{21}{8^1}$ <b>OR</b> $\frac{336}{40}$ oe                                                                                                                                                                                                                                                                                                                                                     |       |   | M1 correct cancelling or multiplication of numerators and denominators without cancelling                                                                                                                                                                              |
|           | e.g. $\frac{16}{5} \times \frac{21}{8} = \frac{336}{40} = \frac{42}{5} = 8\frac{2}{5}$<br><b>or</b> $\frac{16}{5} \times \frac{21}{8} = \frac{336}{40} = 8\frac{16}{40} = 8\frac{2}{5}$<br><b>or</b> $\frac{16^2}{5} \times \frac{21}{8^1} = \frac{42}{5} = 8\frac{2}{5}$<br><b>or</b> candidate clearly shows that in the question, the result of $8\frac{2}{5} = \frac{42}{5}$ and that their answer becomes $\frac{42}{5}$ | shown | 3 | A1<br>Dep on M2 for conclusion to $8\frac{2}{5}$ from correct working – either sight of the result of the multiplication e.g. $\frac{336}{40}$ must be seen or correct cancelling prior to the multiplication to $\frac{42}{5}$<br>NB: use of decimals scores no marks |
|           |                                                                                                                                                                                                                                                                                                                                                                                                                               |       |   | <b>Total 3 marks</b>                                                                                                                                                                                                                                                   |

|           |  |                                                                    |   |                                                                                                                                                                                                                                           |
|-----------|--|--------------------------------------------------------------------|---|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>12</b> |  | Fully correct perpendicular bisector with all relevant arcs shown. | 2 | B2 Fully correct bisector with all arcs. Correct arcs can be on the same side of $AB$ .<br>B1 for all correct arcs and no bisector drawn or for a correct bisector within guidelines but no arcs.<br>NB: On tramlines = within tramlines. |
|           |  |                                                                    |   | <b>Total 2 marks</b>                                                                                                                                                                                                                      |

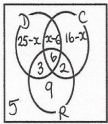
**13**

|           |   |              |                                                            |   |                                                                                                         |
|-----------|---|--------------|------------------------------------------------------------|---|---------------------------------------------------------------------------------------------------------|
| <b>13</b> | a |              | 23                                                         | 1 | B1 accept 22 – 24                                                                                       |
|           | b | e.g. 29 – 17 |                                                            |   | M1 For subtracting readings from 15 and 45                                                              |
|           |   |              | 12                                                         | 2 | A1 accept 10 – 14                                                                                       |
|           | c |              |                                                            |   | B1 ft comparison of the medians                                                                         |
|           |   |              | Two comparisons (at least one of which must be in context) | 2 | B1 ft comparison of the IQR<br><b>Note: to award 2 marks at least one comparison must be in context</b> |
|           |   |              |                                                            |   | <b>Total 5 marks</b>                                                                                    |

|           |                                          |   |   |                                   |
|-----------|------------------------------------------|---|---|-----------------------------------|
| <b>14</b> | 5, 7, 11, 12, 13, 14, 15, 16, 17, 18, 18 |   | 3 | M1 Ordering marks (allow 1 error) |
|           | 11 and 17 selected                       |   |   | M1 LQ = 11 and UQ = 17 identified |
|           |                                          | 6 |   | A1                                |
|           |                                          |   |   | <b>Total 3 marks</b>              |

|           |                              |    |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|-----------|------------------------------|----|---|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>15</b> | $(AOC =) 38 \times 2 (= 76)$ |    | 4 | M1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|           |                              | 52 |   | A1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|           |                              |    |   | <p>B2 (dep on M1) for all reasons relevant to their method – underlined words must be seen.</p> <p><u>angle</u> at the <u>centre</u> is <math>2 \times</math> (double) angle at <u>circumference</u> / <u>angle</u> at <u>circumference</u> is <math>\frac{1}{2}</math> angle at <u>centre</u></p> <p><u>angles</u> in a <u>triangle</u> add to <math>180^\circ</math> <b>or</b> angles in a <u>triangle</u> add to <u><math>180^\circ</math></u></p> <p>base angles in an <u>isosceles</u> triangle (are equal)</p> <p>If not B2 then award B1 (dep on M1) for a correct circle theorem</p> |
|           |                              |    |   | <b>Total 4 marks</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |

|           |                                                                                                     |                           |   |                                                                                                                                |
|-----------|-----------------------------------------------------------------------------------------------------|---------------------------|---|--------------------------------------------------------------------------------------------------------------------------------|
| <b>16</b> | $\frac{3}{2-\sqrt{y}} \times \frac{2+\sqrt{y}}{2+\sqrt{y}}$ <b>or</b> $6+3\sqrt{y}$ <b>or</b> $4-y$ |                           |   | M1 for multiplying numerator and denominator by $(2+\sqrt{y})$ <b>or</b> a correct expression for the numerator or denominator |
|           |                                                                                                     | $\frac{6+3\sqrt{y}}{4-y}$ | 2 | A1                                                                                                                             |
|           |                                                                                                     |                           |   | <b>Total 2 marks</b>                                                                                                           |

|    |     |                                                                                   |    |   |                                                                                                                                                                   |
|----|-----|-----------------------------------------------------------------------------------|----|---|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 17 | (a) |  |    | 3 | B3 All 8 values inserted correctly<br>B2 for 4 to 7 correct values<br>B1 for 2 or 3 correct values<br>NB: Expressions involving $x$ do not have to be simplified. |
|    | (b) | " $[(25 - x) + (x - 6) + (16 - x) + 3 + 6 + 2 + 9 + 5] = 50$ "                    |    | 2 | M1ft For sum of all their values = 50 oe                                                                                                                          |
|    |     |                                                                                   | 10 |   | A1                                                                                                                                                                |
|    |     |                                                                                   |    |   | <b>Total 5 marks</b>                                                                                                                                              |

|    |     |                                                          |                     |   |                                      |
|----|-----|----------------------------------------------------------|---------------------|---|--------------------------------------|
| 18 | (a) | Factorising numerator as $(5x + 4)(2x + 3)$              |                     | 3 | M1                                   |
|    |     | Factorising denominator as $(2x + 3)(2x - 3)$            |                     |   | M1                                   |
|    |     |                                                          | $\frac{5x+4}{2x-3}$ |   | A1                                   |
|    | (b) | $(8^{5y} = ) 2^{15y}$ or $(4^n = ) 2^{2n}$ or $2^{5y+2}$ |                     | 4 | M1                                   |
|    |     | $2^{5y+2} = 2^{15y-2n}$ oe                               |                     |   | M1 e.g. $2^{2n} = 2^{15y-5y-2}$      |
|    |     | $5y + 2 = 15y - 2n$ oe                                   |                     |   | M1 Correct equation using the powers |
|    |     |                                                          | $n = 5y - 1$        |   | A1 Dep on M2 (accept $5y - 1$ )      |
|    |     |                                                          |                     |   | <b>Total 7 marks</b>                 |

|           |                                                                      |                                               |   |                                                                                   |
|-----------|----------------------------------------------------------------------|-----------------------------------------------|---|-----------------------------------------------------------------------------------|
| <b>19</b> | $(N+1)^2 = (N^2 + 2N + 1)$<br>and $(N-1)^2 = (N^2 - 2N + 1)$         |                                               | 3 | M1                                                                                |
|           | $(N^2 + 2N + 1) - (N^2 - 2N + 1) = 4N$                               |                                               |   | M1 Must reach $4N$ correctly                                                      |
|           |                                                                      | $N = 5x$ oe<br>Therefore $4N = 20x$           |   | A1 Dep. on M2. A correct conclusion (i.e. 20 “x”) following fully correct working |
|           | <b>Alt:</b> $N = 5x$ oe in both $A$ and $B$                          |                                               |   | M1                                                                                |
|           | $(5x+1)^2 = (25x^2 + 10x + 1)$<br>and $(5x-1)^2 = (25x^2 - 10x + 1)$ |                                               |   | M1                                                                                |
|           |                                                                      | $(25x^2 + 10x + 1) - (25x^2 - 10x + 1) = 20x$ |   | A1 Dep. on M2. Subtraction of two correct brackets to reach 20 “x”                |
|           | <b>Alt:</b> $A^2 - B^2 = (A+B)(A-B)$<br>$A+B = 2N$ and $A-B = 2$     |                                               |   | M1                                                                                |
|           | $A^2 - B^2 = 2N \times 2 = 4N$                                       |                                               |   | M1                                                                                |
|           |                                                                      | $N = 5x$ oe<br>Therefore $4N = 20x$           |   | A1 Dep. on M2. A correct conclusion (i.e. 20 “x”) following fully correct working |
|           |                                                                      |                                               |   | <b>Total 3 marks</b>                                                              |



|    |                                                  |                 |   |    |                                                                                                                                                                         |
|----|--------------------------------------------------|-----------------|---|----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 20 | $-2(x^2 + 6x - 3.5)$ or $-2(x^2 + 6x) + 7$       |                 | 3 | M1 | Factorising by $-2$                                                                                                                                                     |
|    | $-2[(x+3)^2 - 9 - 3.5]$ or $-2[(x+3)^2 - 9] + 7$ |                 |   | M1 | Completing the square                                                                                                                                                   |
|    |                                                  | $25 - 2(x+3)^2$ |   | A1 |                                                                                                                                                                         |
|    | Alt : $a + b(x^2 + 2cx + c^2)$                   |                 |   |    |                                                                                                                                                                         |
|    | $2bc = -12$ or $a + bc^2 = 7$ or $b = -2$        |                 |   | M1 | Equating coefficients or stating value of $b$                                                                                                                           |
|    | $2 \times -2 \times c = -12$ or $c = 3$          |                 |   | M1 | Equating coefficients or stating value of $c$                                                                                                                           |
|    | $a + -2 \times (3)^2 = 7$ or $a = 25$ seen       |                 |   | A1 | Equating coefficients or stating value of $a$                                                                                                                           |
|    |                                                  |                 |   |    | Special Cases:<br>SC B2 for answer of $-2(x+3)^2 + \text{constant}$<br>or $25 - 2(x + \text{positive constant})^2$<br>SC B1 for answer of $-2(x-3)^2 + \text{constant}$ |
|    |                                                  |                 |   |    | <b>Total 3 marks</b>                                                                                                                                                    |

|    |                                                                                                                                                                                            |                                         |   |               |                                                    |
|----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|---|---------------|----------------------------------------------------|
| 21 | $OC = 3\mathbf{a} + 4\mathbf{b}$                                                                                                                                                           |                                         | 5 | B1            | Correct expression for $OC$                        |
|    | $ON = t(3\mathbf{a} + 4\mathbf{b})$                                                                                                                                                        |                                         |   | M1            | Correct expressions for $ON$                       |
|    | $ON = 3\mathbf{a} + s(-3\mathbf{a} + 6\mathbf{b})$                                                                                                                                         |                                         |   | M1            |                                                    |
|    | $t(3\mathbf{a} + 4\mathbf{b}) = 3\mathbf{a} + s(-3\mathbf{a} + 6\mathbf{b})$<br>$\rightarrow t = 0.6, s = 0.4$                                                                             |                                         |   | A1            | $t$ or $s$ value correct                           |
|    |                                                                                                                                                                                            | $ON = 1.8\mathbf{a} + 2.4\mathbf{b}$ oe |   | A1            | e.g. $ON = \frac{3}{5}(3\mathbf{a} + 4\mathbf{b})$ |
|    | Alt:                                                                                                                                                                                       |                                         |   |               |                                                    |
|    | $AB = -3\mathbf{a} + 6\mathbf{b}$                                                                                                                                                          |                                         |   | B1            | Correct expression for $AB$                        |
|    | $AN = s(-3\mathbf{a} + 6\mathbf{b})$                                                                                                                                                       |                                         |   | M1            | Correct expressions for $AN$                       |
|    | $AN = -3\mathbf{a} + t(3\mathbf{a} + 4\mathbf{b})$                                                                                                                                         |                                         |   | M1            |                                                    |
|    | $-3\mathbf{a} + t(3\mathbf{a} + 4\mathbf{b}) = s(-3\mathbf{a} + 6\mathbf{b})$<br>$\rightarrow t = 0.6, s = 0.4 \rightarrow AN = -1.2\mathbf{a} + 2.4\mathbf{b}$<br>$ON = 3\mathbf{a} + AN$ |                                         |   | A1            | $t$ or $s$ value correct                           |
|    |                                                                                                                                                                                            | $ON = 1.8\mathbf{a} + 2.4\mathbf{b}$ oe |   | A1            | e.g. $ON = \frac{3}{5}(3\mathbf{a} + 4\mathbf{b})$ |
|    | Alt:                                                                                                                                                                                       |                                         |   |               |                                                    |
|    | $OC = 3\mathbf{a} + 4\mathbf{b}$                                                                                                                                                           |                                         |   | B1            | Correct expression for $OC$                        |
|    | $ON : NC = 6 : 4$ (i.e 3:2)                                                                                                                                                                |                                         |   | M1            |                                                    |
|    | $ON = \frac{3}{5} OC$                                                                                                                                                                      |                                         |   | M2            |                                                    |
|    |                                                                                                                                                                                            | $ON = 1.8\mathbf{a} + 2.4\mathbf{b}$ oe |   | A1            | e.g. $ON = \frac{3}{5}(3\mathbf{a} + 4\mathbf{b})$ |
|    |                                                                                                                                                                                            |                                         |   | Total 5 marks |                                                    |

|    |       |          |                               | Edexcel averages: scores of candidates who achieved grade: |           |              |              |              |              |              |              |              |              |
|----|-------|----------|-------------------------------|------------------------------------------------------------|-----------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Qn | Paper | Question | Skill tested                  | Max score                                                  | Mean %    | ALL          | 9            | 8            | 7            | 6            | 5            | 4            | 3            |
| 1  | 1HR   | Q03      | Algebraic manipulation        | 8                                                          | 91        | 7.28         | 7.92         | 7.84         | 7.64         | 7.35         | 6.94         | 5.70         | 4.42         |
| 2  | 2HR   | Q07      | Simultaneous linear equations | 3                                                          | 86        | 2.57         | 2.95         | 2.80         | 2.78         | 2.39         | 2.35         | 1.88         | 1.25         |
| 3  | 1HR   | Q06      | Quadratic equations           | 3                                                          | 83        | 2.49         | 2.92         | 2.85         | 2.72         | 2.11         | 2.01         | 1.63         | 1.00         |
| 4  | 2HR   | Q01      | Powers and roots              | 3                                                          | 89        | 2.68         | 2.90         | 2.92         | 2.70         | 2.56         | 2.52         | 2.25         | 2.25         |
| 5  | 2HR   | Q03      | Linear equations              | 4                                                          | 82        | 3.29         | 3.94         | 3.84         | 3.60         | 3.13         | 2.33         | 1.62         | 0.67         |
| 6  | 2HR   | Q15      | Graphs                        | 4                                                          | 86        | 3.43         | 3.86         | 3.71         | 3.56         | 3.18         | 3.08         | 2.70         | 2.30         |
| 7  | 2HR   | Q11a     | Inequalities                  | 2                                                          | 81        | 1.62         | 1.95         | 1.87         | 1.76         | 1.61         | 1.10         | 0.92         | 0.36         |
| 8  | 1HR   | Q17ac    | Function notation             | 3                                                          | 82        | 2.45         | 2.93         | 2.87         | 2.53         | 2.21         | 1.77         | 1.42         | 0.89         |
| 9  | 1HR   | Q10      | Linear equations              | 5                                                          | 75        | 3.74         | 4.80         | 4.74         | 4.08         | 2.98         | 1.87         | 0.97         | 0.36         |
| 10 | 1HR   | Q01      | Ratio and proportion          | 3                                                          | 78        | 2.35         | 2.87         | 2.76         | 2.44         | 2.30         | 1.69         | 0.96         | 0.97         |
| 11 | 1HR   | Q02      | Fractions                     | 3                                                          | 78        | 2.32         | 2.68         | 2.60         | 2.38         | 2.29         | 2.08         | 1.62         | 1.03         |
| 12 | 2HR   | Q06      | Construction                  | 2                                                          | 73        | 1.45         | 1.81         | 1.65         | 1.52         | 1.25         | 0.99         | 0.72         | 0.67         |
| 13 | 1HR   | Q12      | Statistical measures          | 5                                                          | 67        | 3.35         | 4.58         | 4.00         | 3.09         | 2.37         | 2.12         | 1.54         | 1.14         |
| 14 | 2HR   | Q14      | Statistical measures          | 3                                                          | 62        | 1.85         | 2.54         | 2.10         | 1.79         | 1.34         | 1.06         | 0.83         | 0.61         |
| 15 | 1HR   | Q14      | Circle properties             | 4                                                          | 58        | 2.32         | 3.18         | 2.68         | 2.24         | 1.70         | 1.35         | 1.06         | 0.69         |
| 16 | 1HR   | Q13b     | Powers and roots              | 2                                                          | 62        | 1.23         | 1.93         | 1.62         | 1.06         | 0.62         | 0.51         | 0.13         | 0.00         |
| 17 | 2HR   | Q17ab    | Set language and notation     | 5                                                          | 56        | 2.78         | 4.21         | 3.20         | 2.41         | 1.76         | 1.34         | 1.07         | 0.84         |
| 18 | 2HR   | Q21      | Algebraic manipulation        | 7                                                          | 53        | 3.71         | 6.33         | 4.54         | 2.86         | 1.97         | 0.86         | 0.50         | 0.14         |
| 19 | 2HR   | Q25      | Algebraic manipulation        | 3                                                          | 42        | 1.26         | 2.28         | 1.55         | 0.84         | 0.40         | 0.23         | 0.06         | 0.00         |
| 20 | 2HR   | Q23      | Algebraic manipulation        | 3                                                          | 41        | 1.23         | 2.52         | 1.42         | 0.72         | 0.32         | 0.15         | 0.00         | 0.00         |
| 21 | 2HR   | Q26      | Vectors                       | 5                                                          | 28        | 1.39         | 2.73         | 1.25         | 0.77         | 0.41         | 0.19         | 0.06         | 0.06         |
|    |       |          |                               | <b>80</b>                                                  | <b>68</b> | <b>54.79</b> | <b>71.83</b> | <b>62.81</b> | <b>53.49</b> | <b>44.25</b> | <b>36.54</b> | <b>27.64</b> | <b>19.65</b> |

### Suggested grade boundaries

| Grade | 9  | 8  | 7  | 6  | 5  | 4  | 3  |
|-------|----|----|----|----|----|----|----|
| Mark  | 67 | 58 | 49 | 40 | 32 | 24 | 18 |