**Year 10 Higher Standard: Assessment 1 Review homework**

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| **Topic 1** | **/15** | **Topic 2** | **/12** | **Topic 3** | **/13** | **Topic 4** | **/15** |

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|  | **Topic 1: Recurring decimals and bounds** | **Mark** |
| **1.** | Convert into a fraction.  ……………… | **2** |
| **2.** | Convert   to a fraction in its lowest terms.  ……………… | **3** |
| **3.** | The weight of a tomato is 43g, correct to the nearest gram.  Write down the error bound for this.  ……………………………………………… | **2** |
| **4.** | a) The length of a side of a regular pentagon is 6.0 cm correct to 2 s.f..  Calculate the lower bound for the perimeter of the regular pentagon.  ………………  b) Correct to 2 significant figure, the area of a rectangle is 70 cm2  Correct to 2 significant figures, the length of the rectangle is 9.3 cm.  Calculate the upper bound for the width of the rectangle.    ……………… | **2**  **3** |
| **5.** | *a* = 9.5 correct to 2 significant figures.  *b* = 20 correct to 2 significant figures.  *c* = 6.3 correct to 2 significant figures.  Work out the lower bound for the value of *y*.  Show your working clearly.  ……………… | **3** |

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|  | **Topic 2: Quadratics** | **Mark** |
| **1.** | a) Copy and complete the table of values for *y* = *x*2 + 2*x* – 2.   |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | *x* |  | 2 | 1 | 0 | 1 | 2 | | *y* |  |  | 3 | 2 |  |  |   b) Draw the graph of *y* = *x*2 + 2*x* – 2.  c) Use your graph to find the minimum value of *y*.  d) Use your graph to find an estimate for the roots of *y* = *x*2 + 2*x* – 2.      3 | **1**  **1**  **1**  **1** |
| **2.** | Factorise the following:  a) *x*2 + 13*x* + 12 b) *x*2 – 8*x* – 20  ……………………………… ……………………………… | **4** |
| **4.** | a) Solve *x*2 + 4*x* – 12 = 0  ………………………………  b) Hence sketch the graph of *y = x*2 + 4*x* – 12.  Show the intercepts on the *x* and *y* axes. | **2**  **2** |

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|  | **Topic 3: Data display** | **Mark** |
| **1.** | |  |  |  |  | | --- | --- | --- | --- | | Show this data in a box plot. |  | Range | 50 | | Maximum | 55 | Median | 35 | | Upper quartile | 45 | Interquartile range | 20 |   0 10 20 30 40 50 60 | **3** |
| **2.** | The table shows information about the heights of 40 plants.  a)  Complete the cumulative frequency table.   |  |  |  |  |  | | --- | --- | --- | --- | --- | | Time (t minutes) | Frequency |  | Time (t minutes) | Cumulative Frequency | | 170 < h ≤ 175 | 5 |  | 170 < t ≤ 175 |  | | 175 < h ≤ 180 | 18 |  | 170 < t ≤ 180 |  | | 180 < h ≤ 185 | 12 |  | 170 < t ≤ 185 |  | | 185 < h ≤ 190 | 5 |  | 170 < t ≤ 190 |  |   b)  Draw a cumulative frequency graph for your table.  c)  Find the number of plants with a height greater than 183 cm.  …………… | **1**  **2**  **1** |
| **3.** | Some students were asked how many times they used their mobile phones last week.  The box plots give the male students' answers and the female students' answers.      Compare the two distributions represented by the box plots.  ………………………………………………………………………………………………………………………………………………………………  ……………………………………………………………………………………………………………………………………………………………… | **2** |
| **4.** | The box plot shows the number of behaviour points for each of the pupils in a form.  8 pupils had more than 6 behaviour points. How many pupils are in in the form?  0 2 4 6 8 10 12 14 16  …………………… | **1** |
| **5.** | The frequency table below gives information about the books sold in a second bookshop.  Draw a histogram to represent the information. |  |
|  | |  |  |  | | --- | --- | --- | | Price, *P*, in pounds (£) | Frequency |  | | 0 < *P* ≤ 5 | 10 | | 5 < *P* ≤ 15 | 30 | | 15 < *P* ≤ 30 | 15 | | **3** |

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|  | **Topic 4: Indices and surds NON-CALCULATOR** | **Mark** |
| **1.** | Calculate the following:  a) = ……………… b) = ……………… c) = ……………… | **3** |
| **2.** | Work out the value of ……………… | **2** |
| **3.** | Work out the value of *x* if    ……………… | **1** |
| **4.** | Calculate . Give your answer in standard form.  ……………………………… | **2** |
| **5.** | Calculate . Give your answer in standard form.  ……………………………… | **2** |
| **6.** | a) Express in surd form.  ………………  b) Rationalise the denominator and simplify fully  ……………… | **1**  **2** |
| **7.** | Expand and simplify  ……………………………… | **2** |