**Year 10 Enhanced Standard: Assessment 1 Revision**

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| **Topic 1** | **/20** | **Topic 2** | **/20** | **Topic 3** | **/20** | **Topic 4** | **/20** |

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|  | **Topic 1: Recurring decimals and bounds** | **Mark** |
| **1.** | Write $\frac{3}{11}$  as a recurring decimal. | **1** |
| **2.** | Convert $0.4\dot{1}$ into a fraction     | **2** |
| **3.** | Convert   $0.1\dot{7}\dot{2}$ to a fraction in its lowest terms. | **2** |
| **4.** | a)    Show that $\frac{4}{9}$   is equivalent to $0.\dot{4}$.  b) Using part (a), or otherwise, write $0.9\dot{4}$  as a fraction. | **1****2** |
| **5.** | a) The length of a side of a regular hexagon is 3.6 cm correct to the nearest  millimetre. Calculate the upper bound for the perimeter of the regular hexagon.b) Correct to 1 significant figure, the area of a rectangle is 80 cm2 Correct to 2 significant figures, the length of the rectangle is 12 cm. Calculate the upper bound for the perimeter of the rectangle. Show your working clearly.  | **1****3** |
| **6.** | a = 3 correct to 1 significant figureb = 8.37 correct to 3 significant figuresc = 5.3 correct to 1 decimal placeCalculate the upper bound of *a*(*b* – *c*) Show your working clearly. | **3** |
| **7.** | Here is a solid bar made of metal.The bar is in the shape of a cuboid. The height of the bar is *h* cm. The base of the bar is a square of side *d* cm.The mass of the bar is *M* kg.*d* = 8.3 correct to 1 decimal place. *M* = 13.91 correct to 2 decimal places. *h* = 84 correct to the nearest whole number.Find the value of the density of the metal to an appropriate degree of accuracy. Give your answer in g/cm3.You must explain why your answer is to an appropriate degree of accuracy. | **5** |

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|  | **Topic 2: Quadratics** | **Mark** |
| **1.** | a) Solve *x*2 – 4*x* – 12 = 0 Show clear algebraic working.b) Hence sketch the graph of *y = x*2 – 4*x* – 12  showing the intercepts on the *x* and *y* axes. | **3****2** |
| **2.** | Solve 5*x*2 + 22*x* + 8= 0Show clear algebraic working. | **3** |
| **3.** | a) Solve 2*x*2 + 5*x* –12 = 0 Show clear algebraic working.b) Hence sketch the graph of *y =* 2*x*2 +5*x* – 12  showing the intercepts on the *x* and *y* axes. | **3****2** |
| **4.** | Solve 3*x*2 +8 = 10*x*Show clear algebraic working. | **3** |
| **5.** | a) Write *x*2 + 2*x* − 8 in the form (*x* + *m*)2 + *n* where *m* and *n* are integers.b) Hence sketch the graph of *y = x*2 + 2*x* – 8  showing the minimum point and y intercept. | **2****2** |

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|  | **Topic 3: Data display** | **Mark** |
| **1.** |

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| Show this data on a box plot. | Maximum | 58  |
|  | Upper quartile | 50 |
|  | Median | 38  |
|  | Interquartile range | 26 |
|  | Range | 52 |

 | **3** |
| **2.** | The box plot shows the number of behaviour points for each of the pupils in a form.If 18 pupils had less than 6 behaviour points, how many pupils are in in the form?0 2 4 6 8 10 12 14 16 | **1** |
| **3.** | Compare the heights of the girls and the boys. Boys cm  Girls | **2** |
| **4.** | The grouped frequency table gives information about the lengths of time 160 students exercised one day.a)  Copy and complete the cumulative frequency table.

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| Time (t minutes) | Frequency |  | Time (t minutes) | Cumulative Frequency |
| 0 < t ≤ 40 | 20 |  | 0 < t ≤ 40 |  |
| 40 < t ≤ 80 | 35 |  | 0 < t ≤ 80 |  |
| 80 < t ≤ 120 | 60 |  | 0 < t ≤ 120 |  |
| 120 < t ≤ 160 | 33 |  | 0 < t ≤ 160 |  |
| 160 < t ≤ 200 | 7 |  | 0 < t ≤ 200 |  |
| 200 < t ≤ 240 | 5 |  | 0 < t ≤ 240 |  |

b)  On graph paper, draw a cumulative frequency graph for your table. Time (min)Cumulativefrequencyc)  Use your graph to find the length of time that over 25% of students  exercised for.d) Use your graph to estimate how many students exercised for less than 60  minutes. | **1****3****2****1** |
| **5.** | The table gives information about the speeds, in km/h, of 81 cars.

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| On graph paper, draw a histogram for  | Speed ( s km/h) | Frequency |
| this data | 90 < s ≤ 100 | 13 |
|  | 100 < s ≤ 105 | 16 |
|  | 105 < s ≤ 110 | 18 |
|  | 110 < s ≤ 120 | 22 |
|  | 120 < s ≤ 140 | 12 |

 | **3** |
| **6.** | The histogram shows information about the times taken by a telephone call centre to answer incoming calls.Work out an estimate for the percentage of calls that are answered in less than 40 seconds. | **4** |

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|  | **Topic 4: Indices and surds** | **Mark** |
| **1.** |   Write down the value of (i)  *p* (ii)  *q* (iii)  *r* | **3** |
| **2.** | Write down the value of 125 | **1** |
| **3.** | a)  Find the value of      b)  Find the value of      c)  Work out the value of *x* if       | **1****2****1** |
| **4.** | Express $\sqrt{48}+\sqrt{108}$ in the form $k\sqrt{3}$. | **2** |
| **5.** | a)  Expand and simplify   Show your working clearly.b) Rationalise the denominator and simplify fully   Show your working clearly. | **2****2** |
| **6.** | Given that  where *x* and *y* are positive integers, find the value of *x* and the value of *y*. | **3** |
| **7.** | A trapezium *ABCD* has an area of cm2.*AB* = 4 cm. *BC* = $\sqrt{3}$ cm. *DC* = *k* cm.Calculate the value of *k*, giving your answer in the form where *a*, *b* and *c* are positive integers. Show each step in your working. | **3** |