YEAR 9 ASSESSMENT HOMEWORK CALCULATOR ALLOWED Enhanced

NAME \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ TEACHER \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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| Bounds | /10 | Quadratics | /10 | Cumulative Frequency and Box Plots | /10 | Indices + Standard Form | /10 |

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|  | **Upper and Lower Bounds** |  |
| **1.** | The weight of a bag of potatoes is 34 kg, correct to the nearest kg.  a) Write down the smallest possible weight of the bag of potatoes.  ..................... kg  b) Write down the largest possible weight of the bag of potatoes.  ..................... kg | **(2)** |
| **2.** | The following rectangle has been measured to the nearest mm.  5.4 cm  4.6 cm  a) Calculate the lower bound for the perimeter.  ..................... cm  b) Calculate the upper bound for the area.  ..................... cm2 | **(2)**  **(3)** |
| **4.** | Katy drove for 352 miles, correct to the nearest mile. She used 24.8 litres of petrol, to the nearest tenth of a litre.   |  | | --- | |  |     Work out the lower bound for the petrol consumption for Katy’s journey. Give your answer correct to 2 decimal places.  ...................................... miles per litre | **(3)** |
|  | **TOTAL** | **/10** |

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|  | **Factorise and Solve Quadratics** |  |
| **1.** | a) Factorise *x2* + 5*x* + 6  ………………………………  b) Solve *x2*+ 5*x* + 6 = 0  *x* = ……………… or *x* = ……………… | **(3)** |
| **2.** | (i) Factorise *x2* – 5*x* - 24  ……………………………  (ii) Solve the equation *x2* – 5*x* - 24 = 0  *x* = ……………… or *x* = ……………… | **(3)** |
| **3.** | (i) Factorise *x2* – 16    …………………………………    ii) Solve the equation *x2* – 16 = 0  *x* = ……………… or *x* = ………………  (iii) Sketch the graph of *y =* *x2* – 16 | **(3)**  **(1)** |
|  | **TOTAL** | **/10** |

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|  | **Cumulative Frequency and Box Plots** |  |
| **1.** | The table gives information about the ages of 160 employees of a company.   |  |  |  | | --- | --- | --- | | **Age** **(*A*)** **in** **years** | **Frequency** | **Cumulative** **Frequency** | | 15 < *A* ≤ 25 | 40 |  | | 25 < *A* ≤ 35 | 55 |  | | 35 < *A* ≤ 45 | 30 |  | | 45 < *A* ≤ 55 | 15 |  | | 55 < *A* ≤ 65 | 20 |  |   a) Write down the modal class interval. .......................................  b) Complete the cumulative frequency table.  c) On the grid below, draw a cumulative frequency graph for your table.    d) Use your graph to find an estimate for  (i) the median age of the employees, ..................... years  (i) the interquartile range of the ages. ..................... years | **(1)**  **(1)**  **(2)**  **(1)**  **(2)** |
| **2.** | |  |  |  | | --- | --- | --- | | Some students took a test. | Minimum mark | 10 | | The table shows information about their marks. | Lower quartile | 35 | |  | Interquartile range | 35 | | Use this information to draw a box plot | Median mark | 42 | |  | Range | 65 | | **(3)** |
|  | TOTAL | **(10)** |
|  | **Indices and Standard Form** |  |
| **1.** | Rewrite the following without negative or fractional powers: a) ………………………  b) ……………………… | **(2)** |
| **2.** | Write 7.03 × 10-3 as an ordinary number:  ………………………………… | **(1)** |
| **3.** | The engine of a new aircraft had a major inspection after 2.6 × 106 hours flying time. The aircraft flies at an average speed of 800 km/h.  Calculate the distance travelled by the new aircraft before its engine had a major inspection.  Give your answer in standard form.  ……………………… km | **(2)** |
| **4.** | *p* = 3 890 000  *q* = 8.1 × 103  Find the value of  Give your answer in standard form, correct to 2 significant figures.  ................................ | **(2)** |
| **5.** | *y*2 = *a* = 4 × 107  *b* = 3 × 106  Find *y* . Give your answer in standard form correct to 2 significant figures.  *y* = ................................... | **(3)** |
|  | **TOTAL** | **/10** |