**YEAR 11 TEST 5 Revision NON-CALCULATOR HIGHER**

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| Common Graphs | /10 | Inequalities | /15 | Loci + Vectors | /10 | Algebraic fractions | /15 |

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|  | **Algebra: Graphs** | | | |  |
| **1.**  **S** | Sketch the following graphs. Make sure you label any intercepts on the axes.  a) b) c) d) | | | | **(4)** |
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| **2.**  **F** | |  |  |  | | --- | --- | --- | | *A* | *B* | *C* |   Match the letter of the graph with the number of the possible equation:   |  |  |  | | --- | --- | --- | | *1* | *2* | *3* | | *y = x2 + 6x + 5* | *y = -5 + 6x - x2* | *y = x2  + 4x - 5* | | | | | **(2)** |
| **3.**  **F** | The graph of y = f(*x*) is shown.   1. Write down the co-ordinates of the turning point of the graph.   ( …… , …… )   1. Write down the roots of f(*x*) = 0   ………… and …………   1. Use the graph to find an estimate of f(1.5)   ………… | | | | **(1)**  **(1)**  **(1)** |
| **5.**  **M** | Matt sketches the graph of for *x* ≥ 0.  Make one criticism of his sketch.  ……………………………………………………………………………………  …………………………………………………………………………………… | | | | **(1)** |
|  | **Algebra: Inequalities** | | | |  |
| **1.**  **S** | |  |  |  |  |  | | --- | --- | --- | --- | --- | | a) | Write the inequality shown below.  ………………………… | b) | | Write down the integer values satisfied by this diagram.  ………………… | |  | | |  | | |  | | |  | | | | | | **(2)**  **(2)** |
| **2.**  **F** | How are the integer values for A and B different?  A: Solve  3 ≤ 3*x* < 18 B: Solve  3 < 3*x* ≤ 18  ……………………………………………………………………………………………………………………………………………………… | | | | **(1)** |
| **3.**  **F** | Work out **all** the integers that  satisfy the inequality:   12 < 3*x* ≤ 24  ………………………… | | | | **(1)** |
| **4.**  **F** | Solve    3(2*x* + 1) > 4*x* – 5  …………………………  ***x***  ***y*** | | | | **(2)** |
| **5.**  **F** | Show the region satisfied  by the three inequalities.     |  |  |  |  | | --- | --- | --- | --- | | *y* | ≥ | 1 | | | *y* | ≤ | *x* | | | *y* | ≤ | 3 *- ½ x* | | |  |  |  |   Label the region clearly with the letter R | | | | **(3)** |
| **6.**  **M** | Joe draws this graph to identify  the region R represented by  *y* ≤ *x*  + 2  and  *y* > 3 − *x*  and  *x* < 3    Make **a** criticism of his graph  ………………………………………………………………………  ……………………………………………………………………… | | | | **(1)** |
| **6.**  **M** | Solve  ………………………… | | | | **(3)** |

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|  | **Geometry: Loci and Vectors** |  |
| **1.**  **F** | Use ruler and compasses to **construct** an angle of 60° | **(1)** |
| **2.**  **S** | and Calculate the following:  a)  ………………………… b)  ………………………… | **(2)** |
| **3.**  **F** | *OAB* is a triangle.  **a**  **b**  a)   Write down the vector in terms of **a** and **b**.  …………………………  *X* is the point on *AB* such that *AX* : *XB* = 1 : 2  b)   Express the vector in terms of **a** and **b**.  ………………………… | **(1)**  **(2)** |
| **4.**  **M** | *ABC* is a straight line.    a) Express in terms of and .   Give your answer in its simplest form.  …………………………  *AB* : *BC* = 1 : 3  b) Express in terms of and .   Give your answer in its simplest form.  ………………………… | **(1)**  **(3)** |
|  | **Algebra: Algebraic fractions** |  |
| **1.**  **F** | Express as a single fraction in its simplest form  ………………………… | **(3)** |
| **2.**  **F** | Write as a single fraction  ………………………… | **(4)** |
| **3.**  **F** | Simplify  ………………………… | **(4)** |
| **4.**  **M** | Simplify  ………………………… | **(4)** |