**YEAR 11 Assessment Review Homework covering TEST 5 Non-calculator ENHANCED**

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| **Common Graphs** | **/15** | **Inequalities**  | **/12** | **Loci Vectors** | **/15** | **Algebraic****fractions** | **/20** |

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| --- | --- | --- |
|  | **Algebra: Graphs** |  |
| **1.****S** | Sketch the graph of

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| a) | $$y=x^{2}$$ | b) | $$y=-\frac{1}{x}$$ | c) | $$y=x^{3}$$ |

 | **(3)** |
| **2.****S** | 1. Which is the correct equation for the graph shown below.

|  |  |  |  |
| --- | --- | --- | --- |
| ***y =* cos *x*** | ***y* = sin *x*** | ***y* = 2*x*** | ***y* = tan *x*** |

|  |
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b)     Which is the correct equation for the graph shown below.

|  |  |  |  |
| --- | --- | --- | --- |
| ***y =* cos *x*** | ***y* = sin *x*** | ***y* = 2*x*** | ***y* = tan *x*** |

|  |
| --- |
|  |

 | **(2)** |
| **3.****F** |

|  |  |  |
| --- | --- | --- |
| A | B | C |

Match up the graph with the correct equation

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| --- | --- | --- |
| *y* − 7 = *x*2 + 8*x*  | *y* + *x*2 = 7*x* - 10 | *y* + 18 = *x*2  + 3*x* |

 | **(3)** |
| **4.****F** | The diagram shows a sketch of the graph of    *y* = *x*2 + *ax* + *b*The graph crosses the *x*-axis at (1, 0) and (6, 0).(6, 0)(1, 0)Work out the values of a and *b*. You **must** show your working. | **(3)** |
| **5.****M** | The diagram is a sketch of part of the graph of *y* = cos *x*°.Work out the coordinates of(i) *R,* (ii) *S* (iii) What is the value of cos 45? (iv) What is the value of cos 225?  | **(4)** |
|  | **TOTAL** | **15** |
|  |  |  |
|  | **Algebra: Inequalities** |  |
| **1.****S** | a) Solve        3 *x* − 9 ≤ 23b)     The values    -3, -2, −1, 0, 1, and 2    satisfy **one** of the inequalities below. Select the correct inequality.−4 < 2*y* ≤ 4        −6 ≤  *2y* < 4         −9 ≤ 3*y* ≤ 6 | **(1)****(1)** |
| **2.****F** | Work out **all** the integers that satisfy the inequality   3 < 3n - 2 ≤ 17 | **(2)** |
| **3.****F** | Solve    3*x* − 7 ≤ 5*x* + 14 | **(2)** |
| **4.****F** | On a copy of the axes shown, draw lines to show the region satisfied by the three inequalities.

|  |  |  |
| --- | --- | --- |
| *y* | ≥  | 1 |

|  |  |  |  |
| --- | --- | --- | --- |
| *y* | ≤ | *6 -*  | *x* |

|  |  |  |
| --- | --- | --- |
| *y* − *x* | ≤ | 4 |

Label the region clearly with the letter R | **(3)** |
| **5.****M** | Solve $x^{2} >x+20$ | **(3)** |
|  | **TOTAL** | **12** |
|  |  |  |
|  | **Geometry: Loci and Vectors** |  |
| **1.****S** | Use ruler and compasses to **construct** an angle of 30° | **(3)** |
| **2.****S** | **a** = $\left(\begin{array}{c}-3\\-5\end{array}\right)$ and **b** = $\left(\begin{array}{c}4\\-1\end{array}\right)$  a) Find the vector –**b**b) Find the vector **b** – **a**c) Find the vector 2**b** | **(3)** |
|  |  |  |
| **3.****F** | *OABC* is a parallelogram.*BCD* is a straight line.*BD* = 3*BC*.*M* is the midpoint of *OC*.$$\vec{OA}=x and \vec{AB}=Y $$a) Find, in terms of *x* and *y*, (i) $\vec{AM}$  (ii) $\vec{OD}$   b) Use your answers to (a) (i) and (ii) to write down two different geometric  facts about the lines *AM* and *OD*. | **(2)****(2)** |
| **4.****M** | *OAB* is a triangle. *P* is the point on *OA* such that *OP* : *PA* = 2 : 1*C* is the point such that *B* is the midpoint of *OC*. *M* is the midpoint of *AB*.$\vec{OA}$  = 6**a**  $\vec{OB}$  = 4**b** Show that *PMC* is a straight line.  | **(5)** |
|  | **TOTAL** | **15** |
|  |  |  |
|  | **Algebra: Algebraic fractions** |  |
| **1.****S** | Simplify $\frac{x+2}{4}-\frac{x-6}{3}$      | **(3)** |
| **2.****S** | Write as a single fraction  $\frac{5}{x-3}-\frac{2}{x+2}$      | **(3)** |
| **3.****F** | Express $\frac{3}{2x+3}-\frac{1}{2x-3}+\frac{6}{4x^{2}-9}$ as a single fraction in its simplest form. | **(4)** |
| **4.****F** | Simplify fully $\frac{2x^{2}+3x+1}{x^{2}-3x-4}$ | **(3)** |
| **5.****M** | Show that $\frac{2x-4}{x^{2}+2x-8}÷\frac{x-4}{(x^{2}-16)}$ simplifies to *a*  where a is an integer. | **(3)** |
| **6.****M** | Write $5-\left[\left(x+5\right)÷\frac{x^{2}+7x+10}{x-3}\right]$ as a single fraction in its simplest form.  | **(4)** |
|  | **TOTAL** | **20** |