**YEAR 11 TEST 6 Revision CALCULATOR ENHANCED**

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| Graphs + tangents | /15 | Equation of circle | /10 | Frequency Tree | /5 | Transformation | /10 |

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|  | **Graphs and Tangents** |  |
| **1.** | The distance around a cycle track is 400 metres.  Robin cycles on the track. Here is his speed-time graph.  Show that Robin cycles **exactly** once around the track in 110 seconds.    …………………………………………………………………………………………………………………………………………………………………  …………………………………………………………………………………………………………………………………………………………………  ………………………………………………………………………………………………………………………………………………………………… | **(2)** |
| **2.** | The graph shows the speed of  a train for 16 seconds.  Work out an estimate for the  distance travelled by the train  during the 16 seconds.  ………………… m | **(6)** |
| **3.** | The speed-time graph for a car’s journey is shown.  a)     Estimate the acceleration at 6 seconds. You **must** show your working.  …………………………………………………………………………………………………………………………………………………………………  …………………………………………………………………………………………………………………………………………………………………  …………………………………………………………………………………………………………………………………………………………………  ………………… m/s2  b)     Estimate the distance travelled by the car for the journey.  You **must** show your working.  …………………………………………………………………………………………………………………………………………………………………  …………………………………………………………………………………………………………………………………………………………………  …………………………………………………………………………………………………………………………………………………………………  …………………………………………………………………………………………………………………………………………………………………  …………………………………………………………………………………………………………………………………………………………………  …………………………………………………………………………………………………………………………………………………………………  ………………… | **(3)**  **(4)** |
|  | **Equation of a circle** |  |
| **1.** | A circle has equation     *x2* + *y2* = 4  a) What is the radius of the circle?  ……………  b) What is the gradient of the tangent to the curve at the point ( 1, )  …………… | **(1)**  **(1)** |
| **2.** | The diagram shows the circle    *x*² + *y*² = 25  *P* lies on the circle and has  *x*-coordinate 4  The tangent at *P* intersects the  *x* -axis at *Q*.  a) Work out the equation of the tangent to the circle at the point P.  …………………………………………………………………………………………………………………………………………………………………  …………………………………………………………………………………………………………………………………………………………………  …………………………………………………………………………………………………………………………………………………………………  …………………………………………………………………………………………………………………………………………………………………  …………………………………………………………………………………………………………………………………………………………………  ………………………  b) Work out the coordinates of *Q*.  …………………………………………………………………………………………………………………………………………………………………  …………………………………………………………………………………………………………………………………………………………………  …………………………………………………………………………………………………………………………………………………………………  ( …………… , …………… )  c) Work out the area of triangle OQP.  …………………………………………………………………………………………………………………………………………………………………  …………………………………………………………………………………………………………………………………………………………………  ……………………… | **(4)**  **(2)**  **(2)** |
|  | **Frequency Trees** |  |
| **1.** | 200 people live in a village.  35% of people do not have a garden.  of the people without a garden are male.  of the people are female.  a) Use this information to complete the frequency tree.  b) One of the people who does have a garden is chosen at random.  What is the probability that this person is female?  ………… | **(3)**  **(2)** |
|  | **Transformations** |  |
| **1.** | Enlarge triangle *ABC*  by scale factor -1, centre (1, 2). | **(2)** |
| **2.** | Enlarge triangle *ABC* by  scale factor centre (0, 2). | **(3)** |
| **3.** | The shape is **rotated** 90° clockwise about point *A*.  It is then **enlarged** by scale factor −2, centre *B*.  Draw the final shape on the diagram. | **(5)** |