**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/s2b)     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* = 4a) What is the radius of the circle?  ……………b) What is the gradient of the tangent to the curve at the point ( 1, $\sqrt{3} $ )…………… | **(1)****(1)** |
| **2.** | The diagram shows the circle    *x*² + *y*² = 25*P* lies on the circle and has *x*-coordinate 4The 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.$\frac{3}{5}$ of the people without a garden are male.$\frac{21}{40}$ 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 $-\frac{2}{3}$ 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)** |