Y12 **:** PRACTICE ASSESSMENT **B**. **MERIT LEVEL ONLY.**

 **Algebra**.

***1. If B = K(0.8)t find :***

***(a) the value of K given that when t = 0, B= 240***

***(b) the value of B when t = 4***

***(c) the value of t when B = 100***

***2. Solve x2 + (2x – 4) 2 = 13.***

***3. Solve the equation :***

***20 + 3x = 30 + 4x***

 ***x + 2 x + 5***

***4. Solve 32x – 1  = 50***

***5. Solve 5 – x = 6***

 ***x***

***6. Solve:***

 ***(x2 – 81)(x2 – 1 ) = 0***

***7. Solve***

 ***300(0.75)t = 60***

***8. Find the sides of this triangle.***

 ***x x + 8***

 ***x + 4***

 **Calculus.**

***1. If y' = x2 – 8x + 15 find y if x = 3, y = 2***

***2. The velocity of a model car is :***

 ***v = 30t – 3t2***

***(a) The distance x of the car from O initially is***

 ***x = 4 metres.***

***Find a formula for the distance at any time t sec***

***(b) Find x at t = 4 sec***

***(c) Find t when the velocity is zero.***

***(d) What is the maximum distance of the car from O?***

***3. If y' = x(x – 2)(x – 6)***

***find y if x = 0, y = 0***

***4. Find the coordinates of the max/min points on the curve :***

 ***y = x(x + 3)(x – 5)***

***5. Find the equation of the tangent to the curve***

***y = x2 – 3x + 2 at the point (3, 2)***