Y12 **:** PRACTICE ASSESSMENT **A**. **ACHIEVEMENT LEVEL ONLY.**

**Algebra.**

***1. Expand:***

 ***(3x – 4)(5x + 2)***

 ***(x – 2)(x2 – 3x + 4)***

***(x – 3)(x + 4)(x – 1)***

***2. Simplify fully:***

***(a) √ (16p16)***

***(b) (8c6d9)⅓***

***3. Combine into one***

 ***log function:***

***(a) 4log p + 5log v***

***(b) 5log 2 – 3 log 5***

***4. Simplify fully:***

***(a) 5 + 3***

 ***4k k***

***(b) 4 + x***

 ***(x + 2) (x + 1)***

***5. Solve:***

***(a) 9(x+2)–5(x–3)=9***

***(b) 5x2 – 2x – 7 = 0***

***(c) 2x = 128***

***(d) log 2 x = 5***

***(e) log b 64 = 3***

***6. Factorise:***

***(a) 9x2 – 25y2***

***(b) 12a4b3 – 8a3b2***

**Calculus.**

***1. Find the gradient***

 ***of y = 3x2 at x = 4***

***2. Find the x value of the point on the curve y = x2 – 8x***

***where the gradient equals 6.***

***3. Find the x value of the point on the curve y = 3x2 – 12x where the gradient is zero.***

***4. Find y if***

***y' = 3x2 + 8x + 3***

***5. Find the equation of the curve given that dy = 4x3 – 6x***

 ***dx***

***and the point (2, 4) is on the curve.***

***6. If y' = 3x2 + 2***

***find y if x = 2, y = 3***

***7. If y = 4x6 find dy***

 ***dx***

***8. If dy = 4x6 find y***

 ***dx***