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

**Algebra.**

***1. Expand:***

***(a) (5x – 4)2***

***(b) (x–2)(x+3)(x–5)***

***2. Simplify fully:***

***(a) √ (9c16)***

***(b) (27a3b12)⅔***

***3. Combine into one***

***log function:***

***3log a – 2log b***

***4. Simplify fully:***

***3 – 2***

***(x + 2) (x + 3)***

***5. Solve:***

***(a) 9(x+2)=5(x–3)***

***(b) 5x2 + 2x – 3 = 0***

***(c) -3x > 12***

***(d) log 4 x = 4***

***(e) log b 64 = 2***

***6. Solve:***

***(a) (x2 – 9)(x2 – 4)=0***

***(b) 3(x –4) – (x –2) < 2***

***4 2***

***7. Rearrange the formula V = π r2 h***

***to make r the subject.***

**Calculus.**

***1. Find the gradient***

***of y = x3 at x = 2***

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

***where the gradient equals 8.***

***3. Find the x value of the points on the curve***

***y = 2x3 – 6x where the gradient is zero.***

***4. Find y if***

***y' = 5x3 + 7x2 + 1***

***5. Find the equation of the curve given that f '(x) = 12x2 – 2 and the point (3, 4)***

***is on the curve.***

***6. If y' = x(6 – x )***

***find y if x = 1, y = 10***

***7. Given that***

***f'(x) = 4x + 3x2***

***find f(x) if f(1) = 2***