***Year 12 Maths – REVISION CHECKLIST***

**Chapter 3 Exponential and Logarithmic Functions**

**I can:**

* Simplify with index laws. (c level)

Ex 3A: Q4a-d

* Simplify with logarithm laws. (c level)

Ex 3B: Q7

* Solve simple logarithmic equations. (c level)

Ex 3D: Q4

* Solve simple indicial equations. (c level)

Ex 3C: Q4

* Solve indicial equations using quadratics. (b level and a level)

Ex 3C: Q6

Solve for x $2^{x}-6=2^{4-x}$ \*\*\*

* Apply the exponential equations to find unknowns. (b level)

Chapter 3 Review: Modelling Q1

* Create an exponential growth function. (c level)
	1. The population of a certain animal species increases at a rate of 3.5% per year. You have counted 80 of the animals in the habitat you are studying.
* Write a function that models the change in the animal population.
* Calculate the number of years until the population doubles.
	1. An initial population of 750 endangered turtles double every 5 years. Find the growth factor and the population of turtle after 15 years.
* Calculate the constants in an exponential function.

Chapter 3 Review: Modelling Q2-6 (complete enough to confirm above learning goal)

**Chapter 4 Derivatives of Exponential and Logarithmic Functions**

I can:

* Differentiate exponential functions. (c level)

Ex 4B: Q1, 2

Chapter 4 Review: Q6

* Differentiate log functions. (c level)

Ex 4C: Q2

* Differentiate complex exponential functions using product and quotient rules. (b)

Chapter 4 Review: Q13 and 15

Differentiate

1. $4e^{2x}x^{3}$
2. $7e^{3x+2}x^{2}$
3. $\frac{2e^{4x}}{x}$
* Differentiate complex log functions using product and chain rules. (b level)

Chapter 4 Review: Q 14

Differentiate

1. $4x log\_{e}2x$
2. $\frac{7x^{2}}{log\_{e}x}$

**Chapter 8 Techniques of Integration**

* Calculate the area under a curve (definite integral).
* Integrate (anti-differentiate) exponential functions. (b level)

Ex 8A: Q2 a-f

Calculate the length of a catenary $y=3e^{\frac{x}{6}}+3e^{\frac{-x}{6}}$ from x=1 to x=4

* Integrate (anti-differentiate) with log functions.

I understand that:

* Area under the curve is integral, antidifferentiate.
* Rate of change is differentiate.