

**SM3**

**Integral Calculus and Special Functions**

Learning Brief

**Week**

**Term**

**2014**

1

01

By the end of **week 2**, you should be able to:

* define logarithms (log) and exponents
* understand the relationship between log and exponent
* use index laws
* use log laws
* manipulate log expressions using log laws to solve log equations
* appreciate “e” as a special base

Goals



Theoretical Components

Practical Components

1. Do the questions at the bottom of this page: [Logarithms](http://www.mathsisfun.com/algebra/logarithms.html)
2. Do the questions at the bottom of this page: [Exponents and Logarithms](http://www.mathsisfun.com/algebra/exponents-logarithms.html)
3. Attempt some questions under each section <http://bit.ly/z5ug8D> if you need the practice.
4. From Maths B only do a few questions from each exercise.
5. From Cambridge Exercise 12A only, any from Q3 on. Make sure you can handle harder questions such as Q11 a), Q14 a) b), Q15 a) b) (i)

The websites and text book references are applicable to both week 1 and week 2. Maths B Chap 2 has good worked examples.

1. Introduction to [Logarithms](http://www.mathsisfun.com/algebra/logarithms.html). Read through, make your own notes.
2. Working with [Exponents and Logarithms](http://www.mathsisfun.com/algebra/exponents-logarithms.html). Read through and make notes on Laws of exponents and Laws of Logarithms. Look at the logs and exponents graphs, change of base and real world applications.
3. Keep this document on definition of logs and exponents.

<http://bit.ly/z5ug8D>

1. Watch this video: <http://bit.ly/wCuR6C>
2. Read through to get an insight on the number ‘e’: <http://bit.ly/w8OiD>
3. Read through to get an insight on natural logs (ln): <http://bit.ly/HsQLF>

Note: We will do the calculus of these functions later.

Investigation

Show full working. These problems are a good test of your understanding of log and index laws, and algebraic manipulation.

a) Solve:

b)

c) Solve for x in

d) Use the rules of logarithms (and indices) to show that

l

QFO

Quiz/Forum/Other

There is a forum this week.