

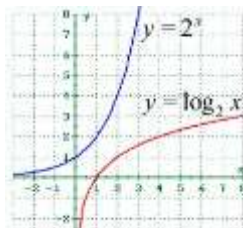
Goals

This topic

- Exponential and logarithmic functions

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 and log laws
- use technology to graph exponential and logarithmic functions
- manipulate log expressions using log laws to solve log equations
- appreciate “e” as a special base



Theoretical components

Resources: 1. GC *Chap 5*
2. Internet links

1. From Google classroom *Chap 5* read through Sections 5D, 5E, 5F, 5G and 5H. Carefully work through the worked examples.
2. Use the links from the Week 1 Brief if you need to review the concepts
3. You will find many good lessons on Mathspace. The curriculum is *Specialist Methods 11 (ACT)* and the topic is *Exponentials*. There is a list of subtopics worthy of attention.

Practical components

From the Google classroom *Chap 5*:
Ex 5D Do all these but use CAS
Ex 5E – remember to look at examples
Ex 5F These are all basic questions – you should do as many as you can.
Ex 5G Q2 Use CAS. There is a button on CAS that allows you to work with *log* to any base. Q3
Ex 5H Q1, Q2, Q3, Q5, Q7, Q12

Investigation

On HawkerMaths – see Task and below

QFO

Quiz/Forum/Other

None

SMM2 Week 2 Investigation

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

a) Solve: $8^{2x-1} = 16^{x+3}$

b) Expand and simplify: $(x^{\frac{1}{2}} - x^{-\frac{1}{2}})^2$

c) Solve for x in $\log_{2x} 216 = x$

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

$$\log_a \frac{m}{n} = \log_a m - \log_a n$$