# ***VCE Calculator Options and Considerations Videos – Transcript***

## **On the Independent Use of CAS Calculator Software by a Year 10 or VCE Student Using a Screen-reader or Braille**

Produced by Nathaniel Schmidt on behalf of the EduVis ‘Pat Roberts Accessible Calculator Benefit’.

## **Notes – Structure:**

* Who is this resource meant for?
  + High school students in latter years of their secondary education – especially yr10 leading into years 11 and / or 12 VCE.
* What is a CAS Calculator?
  + A Computer Algebra System (CAS) calculator is a device that can be in either hardware or software form, which can work out complicated mathematical equations by manipulating a computer to use the same mechanical techniques that a human mathematician would use in order to solve a mathematical problem.
  + Can be generalised or specialised in its purpose.
* How does this differ from a standard scientific calculator used in year 7-9/10?
  + This can be hard to define, as many scientific and graphing calculators have CAS capabilities built into them. But basically, a scientific calculator is a calculator that will either not be able to solve algebraic equations, or if it can solve them then it cannot do so by using the algorithms that emulate human computation. The unique thing about CAS calculators is that they can solve equations symbolically, so they can return the same kind of answer. So you can use letters such as X and Y to perform substitutions and expansion.
* Nathaniel’s reflections from experience i.e. what would have been good to know?
  + It would have saved a lot of time to have a guide that contained the procedural functions I needed to perform all the tasks required for each unit in a maths subject. I had to do my own homework and sometimes had to consult a friend who knew much more than I did because I couldn’t always find the answer.
* Available and approved CAS software calculators:
  + Maple
  + Mathematica
  + Matlab
* Modes of usage:
  + GUI: None.
  + CLI: Maple and Mathematica.
  + Web app frontend: Matlab.
* Compatibility across common devices and platforms.
  + Maxima.
* Compatibility with common screen-readers.
* Ease of locating and learning commands for operation.
* Flexability and intuitivism.
* Support for teachers on using CAS in CLI.
* Demonstrate ma’thematical examples.