

# **B.C.A.M.T. GRAPHING CALCULATOR POSITION STATEMENT**

The British Columbia Association of Mathematics Teachers strongly endorses the use of graphing calculators in mathematics instruction in secondary schools. It is our position that graphing calculator usage commence with grade 10 mathematics courses, be considered necessary for mathematics 11 courses and mandatory for all students enrolled in provincially examinable grade 12 mathematics courses.

The B.C.A.M.T. further emphasizes that as graphing calculators are an accepted component of the environment in which students learn and do mathematics, they must be made readily available for student use in regular classroom and assessment situations.

Graphing calculators have enhanced the teaching of mathematics at all levels and teachers must be encouraged to completely integrate this technology into their daily lessons. Students must be shown how to use the power of graphing calculators to solve problems creatively and to supplement the traditional algorithms. This will surely introduce an additional dimension to the learning of mathematics, thereby enriching and expanding young people's mathematical experiences. Students must understand that a graphing calculator result in itself is not sufficient without a thorough understanding of the process that obtained the result. It must be made clear to them that mathematical reasons and justification for results are essential components of doing mathematics with or without technology.

To this end, the B.C.A.M.T. takes the position that:

1. All students enrolled in Applications of Mathematics 10 - 12 and Principles of Mathematics 10 - 12 courses must have access to a graphing calculator.
2. All features of the graphing calculator must be open to student use, including stored programs.
3. Students must be allowed to bring to exams, graphing calculators that contain any programs of their choice.
  - Programs that perform calculations such as the quadratic formula, midpoint formula, distance formula, and many others, can save students from repetitive 'number crunching' thereby enabling them to concentrate on more worthwhile tasks such as analysis and problem solving.
  - The practice of clearing graphing calculator memories prior to tests and exams is unnecessary, impractical, and superfluous. Apart from encouraging the rote memorization of algorithms, the practice of clearing calculator memory does not contribute to students' learning and understanding of mathematical concepts.
4. Assessment items must be designed to reflect the sophistication of the graphing calculator and must include opportunities for students to use this instrument as a problem solving tool.
  - Teachers must be encouraged to design alternate assessment instruments that reflect the power and utility of the graphing calculator to do mathematics.

## **ACKNOWLEDGMENTS**

In developing this policy statement, the following documents were reviewed:

- B.C. Ministry of Education Calculator Policy
- N.C.T.M Principles and Standards for School Mathematics (2000)

- U.S. College Board S.A.T. and A.P. Calculus positions on the use of graphing calculators

The B.C.A.M.T. is in accord with the recommended list of approved graphing calculators as outlined in the Ministry of Education Calculator Policy Statement. The current list can be obtained by visiting the web site:

**<http://www.bced.gov.bc.ca/exams/specs/pdfs/amaspec.pdf>**