Four Workshops on Using Graphics Calculators

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Data analysis and the graphics calculator

The graphics calculator provides significant advantages for data analysis over less sophisticated technologies such as the scientific calculator, and enjoys significant economic and practical advantage over computer-based statistical packages. This hands-on workshop will allow participants to explore the significance of these advantages for the school mathematics curriculum and for mathematics teaching in the early years of the 21st century. We will use the Casio fx-7450G calculator, developed with the needs and interests of the middle school curriculum in mind, but nonetheless of value to older secondary students as well. No previous experience with graphics calculators will be assumed.

Learning about functions and equations using a graphics calculator

Perhaps the most obvious use of a graphics calculator is to support the development of the links between functions, graphs and equations in the secondary school. This hands-on workshop will allow participants to explore the significance of the calculator for strengthening these links and for the school mathematics curriculum generally in the 21st century. We will use the Casio cfx-9850G+ calculator, developed with the needs and interests of the senior secondary school mathematics curriculum in mind, but nonetheless also of significance for lower secondary school. No previous experience with graphics calculators will be assumed.

Algebra, calculus and the algebraic calculator

Until recently, graphics calculators were restricted to providing numerical support for school algebra and calculus, of importance in helping students to develop the concepts involved. The development of symbolic manipulation capabilities on hand-held calculators is an important change of significance for curriculum development in the early years of the 21st century. This hands-on workshop will allow participants to explore the significance of symbolic manipulation on the calculator for the school algebra and calculus curriculum of the 21st century. We will use the Casio Algebra fx 2.0 calculator, developed with the needs and interests of the senior secondary school curriculum in mind, but nonetheless also of significance for early undergraduate mathematics. No previous experience with graphics calculators will be assumed.

Personal technology for mathematics

The graphics calculator is an important example of a personal technology developed mainly for educational purposes. This hands-on workshop will provide an extended opportunity for participants to explore personally the significance of this technology for mathematics teaching and learning and for the mathematics curriculum generally in the early years of the 21st century. Attention will focus on the use of the calculator as a scientific calculator, as a function graphing device and as a data analysis package, although participants with other interests in secondary school mathematics are also welcome and likely to find the workshop of interest. We will use the Casio cfx-9850G+ calculator, which has enjoyed a wide popularity in schools for these sorts of purposes. No previous experiences with graphics calculators will be assumed.