

# Mathematical Function

Mike Williams reviews another offering from German software house Klein

I approached this review with some enthusiasm (having looked at the same company's *BestForm* - see RISC User 5:3), but I have to say at the outset that I ended it with disappointment. *Functionplotter* from Klein Computer of Germany is designed to plot two types of function:  $y=f(x)$  and  $z=f(x,y)$ . In addition to plotting the resulting graphs, *Functionplotter* will produce 1st, 2nd and 3rd derivatives, calculate values for which  $f(x)$ ,  $f'(x)$ ,  $f''(x)=0$  and calculate integrals (the area under the curve). For functions of two variables, the graph is in

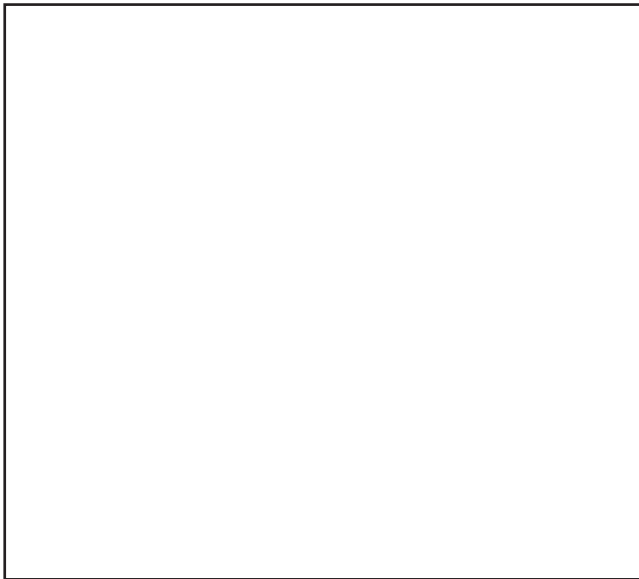


Figure 1. Plot of  $y=2 \sin(x) + \sin(2x)$

the form of a surface, with facilities for calculating surface area and volume.

*Functionplotter* is installed on the icon bar. Clicking on this icon opens a blank window (ready for graph drawing). Clicking the Menu button over this displays a menu of four options:  $y=f(x)$ ,  $z=f(x,y)$ , *Save* and *Print*. Selecting either of the first two options then leads to a dialogue box in which parameters can be set.

For functions of one variable you specify maximum and minimum values for the  $x$  and  $y$  axes, the number of *steps*, and the function to be plotted. The layout of the dialogue box and the use of option buttons

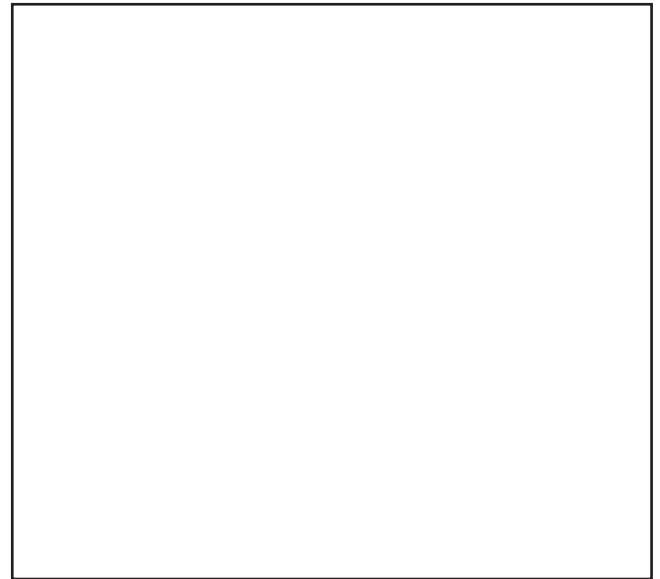


Figure 2. Plot of  $y=(x^3+3x^2-3x-10)/(x^2-3)$

is not to RISC OS standards, and the latter unforgiveably affects other applications. These buttons select other options such as drawing the equations of derivatives, and calculating crossing points, turning points and integrals. Clicking on 'OK' draws the graph (see figure 1).

The axes are marked with values, but often in curious step sizes - for example, in steps of 0.75 when a range of  $\pm 4$  was used. The graph itself is shown in red, but I have to question the correctness of graph plotting. For example, curves involving asymptotes would normally result in the curve and asymptotes being joined together (see figure 2), and asymptotes drawn in red the same as the curve. The number of 'steps' is ill defined, but is described as the number

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of straight lines used to construct the curve, 100 being the recommended value. Other derivatives are displayed in green, blue and yellow, the latter not being very visible against the white background.

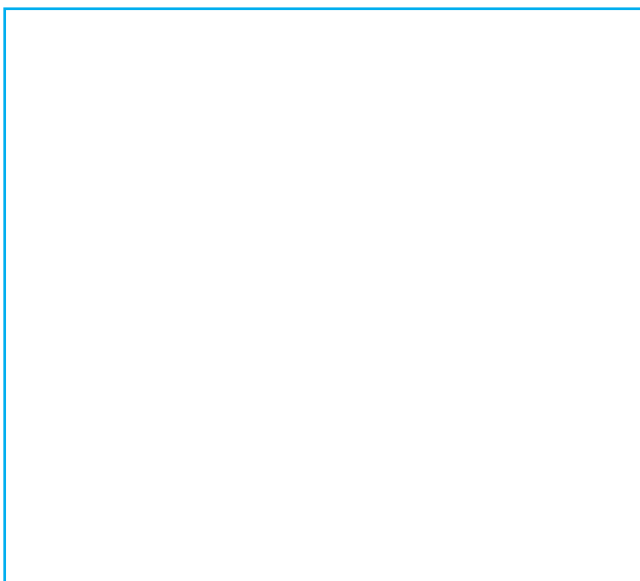


Figure 3. Plot of

There is no facility for defining your own intervals and values to label the axes. It would also have been useful to zoom in and out once the graph was drawn. Any calculations selected are placed well below the graph (using the system font only) and are only visible after much scrolling. The integral calculation uses the specified maximum and minimum x values as the limits - it would have been useful to draw a graph and then specify separately the limits for calculating an integral.

Three dimensional plots are specified similarly with a choice of function plotting (grid lines) which gives the best indication of the surface (see figure 3) or contour plotting.

The other menu options allow any graph to be saved as a Draw file or to be printed using RISC OS printer drivers.

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Functionplotter is supplied on a single disc with a plain 36 page manual. The features are just about adequately described, but there are no examples here or on the disc.

In conclusion I have to say that this product currently lacks both sophistication and flexibility. Compared with what is available from PD libraries or elsewhere (see the Cartesian graph plotter on this month's magazine disc for example), Functionplotter regrettably is limited in what it has to offer.

Product	Functionplotter
Supplier	Klein Computer Häselocherstraße 73, D-6090 Rüsselsheim, Germany. Tel. (+49) 6142 81131 Fax. (+49) 6142 81256
Price	£20.00 (DM67.00)