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Staff room

"Interactive PastPapers" reviewed

Review by Don Kite, a Secondary Schools Maths Teacher. *Followed by a response from the authors.*

PC CD−ROM, developed by the CALM Team, Department of Mathematics, Heriot−Watt University. Published by Lander Software, RRP £39.99.

My Sixth Form son loaded up the program, designed for use at A−level and Scottish Higher, suggesting that the user guide for this part is clear and accurate. Being less computer literate, I found understanding the full scope of the teacher options rather difficult.

I do feel that the program is ambitious and could be very useful. We could not at our school use the program to its full potential, having only one PC. However, it still could be used usefully to allow our Sixth Form (and some earlier years) students to consolidate or revise particular topics or indeed test whole areas of work.

As far as teachers are concerned, if the program could allow a test to be set up then sent to the printer to be used in the traditional way, this would be an extremely useful facility. I appreciate that the program has much more to offer than this but in our situation, to be able to set tests (and also different versions of the same test), could save much teacher time.

At first I thought the program had an immense bank of A−level questions (I only concerned myself with the A Level option). As I got more familiar with it I realised the scope was limited, i.e. 70 questions in all but with number variations. This means that a question, say about perpendicular lines, is always asked in the same way and the student is not getting enough variety. I would like to see a much enlarged bank of questions.

Read **Authors' Response** below for their replies to the above points.

Here are some other questions I asked the developers, with their answers:

The program allowed very complex answers:
e.g. `d/dx ((4x^3+x^2+x+2)/x^2)` was accepted as

`(x^2(12x^2+2x+1)−2x(4x^3+x^2+x+2))/x^4`
The inputting must be extremely clever, but does the student need to be encouraged to simplify?

> *We are proud of the fact that our marking system does allow for students to give mathematically equivalent correct answers and receive full marks. The answer you quote is one such example. It would have been possible to stop the alternative input you suggest by limiting our correct answer to a maximum number of characters, though this can sometimes be impractical when randomisation is used in a question. One of the strengths of our program is its ability to let students input answers in alternative mathematical forms as long as their answers are correct and so build up confidence. It remains the job of the human teacher to explain that some answers are more compact and therefore better.*

At one stage I got 2/3 of a mark but when I revealed the rest of the answer lost the marks I had already scored.

> *This is a misunderstanding −−− since it was a linked answer we had awarded some marks. Had you simply ended the question you would have gained the marks the program had recorded for you. But when you chose to reveal you forfeited those marks.*

On a question I answered finding the acute angle between lines, I got the correct angle but felt the advice was rather inaccurate − to practise finding angles between lines.

> *It is difficult you would admit giving blanket advice to a range of situations. This is why we have given the teacher the ability to change the advice given to suit their needs. The manual or on−line help describes how easy it is to change the advice given to badly answered questions.*

On the Saved Test Summary Report the numbers are not spaced correctly under the titles.

> *The reason for this is that you are reading a file where the information is tab separated. We suggest that you import the results into a standard spreadsheet program. This will make the saved files more readable and you can use the power of the spreadsheet to gather more useful information about students' files.*

Is it possible to enlarge the program screen to fill my computer screen?

> *This feature is highlighted in the manual. The program uses a standard 640x480 screen to allow users with less up−to−date monitors to run the program.*

Authors' Response

[Back to the review's "other questions".]

Thanks for your comments on *Interactive PastPapers*. Following them in order, here is our response:

First of all we are pleased that you found the loading of the program relatively easy. We believe the Teacher Options are quite straightforward too and refer you to the *Interactive PastPapers* Manual for further details.

However, let us repeat some of the instructions as they relate to your comments. For example, you say it would be useful to have paper versions of the questions. The software was not designed for this purpose but realising the usefulness of this feature here are instructions on how to do this:

1. With the screen of questions showing press the "Print Screen" key on the keyboard (usually located at the top right of a keyboard)
2. Open up a paint program (such as "Paint" provided in Windows)
3. Select paste (ctrl−v in Paint) and paste the captured screen into the paint program
4. Use the paint program to print the screen.
5. Note, you can also include these screen images within a word processed document −−− perhaps as part of a homework assignment.

There are we believe 80 questions. The program is only attempting to cover core A−level and so is likely to be limited in some sense. We take your point on variety. As the years roll by we hope to extend the bank of questions and so counter the criticism you have of our initial program.

We would add that *Interactive PastPapers* is the first program that attempts to take students' answers in free form and mark them electronically. Any other products on the market use multiple choice options only or a range of numerical answers. Our program does have in addition plenty of randomisation and this gives users much worthwhile practice.

We certainly hope you will be able to make use of the program for your pupils. We believe it would sharpen up their response to a range of questions. Our new product *Interactive PastPapers for GCSE Mathematics*, contains over 120 questions taken from 25 topic areas and, with its use of random parameters, again provides much practice for the user.

Plus is part of the family of activities in the Millennium Mathematics Project, which also includes the NRICH and MOTIVATE sites.