

The HP 35s and it's Expandable Power

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It's obvious from the 's' suffix that the HP 35s is a scientific calculator. If it were an 'expandable' one, the suffix should be 'x', so what's that got to do with expandable power? Because it is programmable (albeit manually) it can be expanded with program applications.

The hp33s was a low-calorie do-it-yourself calculator that became popular for taking the NCEES exams for both the engineering and surveying professions. The new HP35s gives us a whole list of expanded features to make it a cinch for the same market. Some comments:

When the new 35 was designed the R/S key was placed at the top, instead of next to the keyboard, where the EQN key is now (where it was on the 33). When you use these calculators with solution programs the R/S key is used constantly to continue after each new input and would have been handier in the old position.

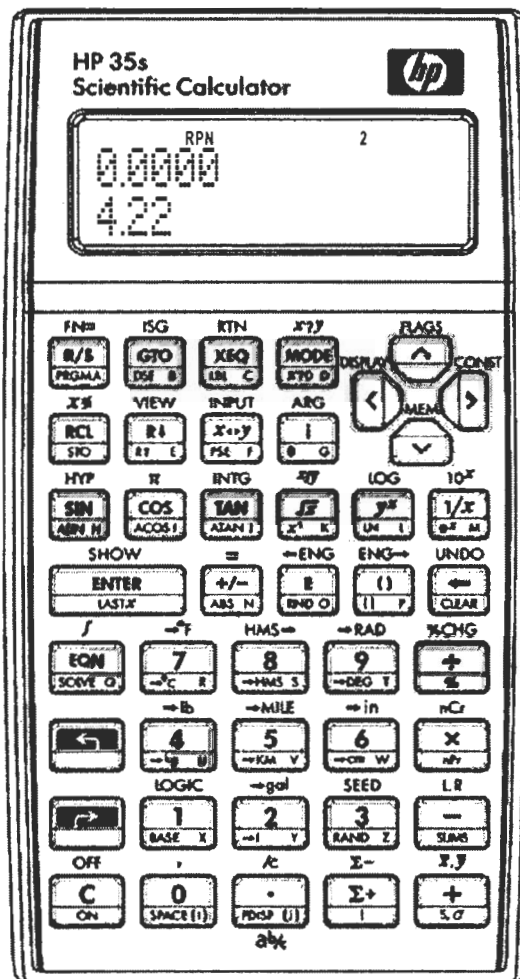
The new power of the 35s is the indirect storage capability, allowing storage of coordinate pairs, essential to surveyors, and the ability to combine all of the needed sub-routines in a single program label when there are only 26 labels available. This has more than doubled the number of solutions we have been able to program for the new calculator.

We already have a number of calls from hp33s owners who have our Surveying Solutions book for the 33 and have purchased the HP35s as their upgrade calculator. The same programs will work in the 35s, until they come to the coordinate geometry programs.

At that point they encounter the lack of the rectangular-to-polar and polar-to-rectangular programmable functions and call us to find out how to get around the problem. There are several available variations of these functions, and they aren't hard to write. I guess the point that I would make here is that they should be programmable in any programmable calculator that HP puts out if the goal is to be user-friendly.

With the HP65, HP67 and the HP41 series, Application Pacs were available for each of the calculators in several disciplines and helped to make the calculators popular with the people who practiced those disciplines. There were also Solution Books and a User's Library Club that different users contributed programs to, and an exchange program . . . if you contributed a program to the library, you got a choice of any free program from an extensive list of what was available.

With the HP41 series there came synthetic programming without any help from HP . . . but thanks to the



hackers. Third party software began to come onto the market on eproms (at a high price, since most of the applications were fancy copies of the HP applications).

The survey eproms that came onto the market used synthetic programming to use a character that approximated a degree symbol and the angle output was fancier (22*16'48"). They still didn't do much that the HP Pac didn't except cost more. And they didn't incorporate any of the already written HP Solution Book additional programming. The HP41 series surprised everyone with it's longevity on the market.

The fact is, pure and simple, that a calculator that has applications available for it will sell better than a different brand that doesn't . . . even if they otherwise offer the same functions. Now, where do the applications come from? Hewlett-Packard decided to go to a third-party system for applications with the HP48 series, and there were all kinds of applications available, and books galore on the calculator itself. The HP48 is still being used right up to the day it totally dies, even though we have 3 generations of graphic calculator since it was discontinued.

The HP49G didn't do well . . . no infrared, poor keys. D'Zign wrote programs for it, but it wasn't going to sell well. The hp49g+ improved the overall salability, with USB connection and infrared, better keys and a better over-all appearance. There still weren't any applications being produced for it, other than for surveying and one for calculating drilling on oil wells. Just before it was replaced by the HP50g a second surveying application was released . . . Where were the engineering applications? Special math applications? You cannot rely on third-party applications if there are no third-parties.

Now, state licensing boards are using the NCEES examinations for professional licensing. All engineers and surveyors have to take a fundamentals exam, and later, a professional exam. NCEES decides which calculator you may use, and the HP33s was the programmable one on the approved list. A perfect example of where a solution book is an aid. D'Zign did a solutions book for surveying, there were some programs sold on line, and there are a few of books on using equations published by Professional Publications, Inc., one for mechanical, one for the fundamentals and one for civil engineering. I won't say that users wouldn't have bought a 33s to use in the tests anyhow, but I know we sold a few thousand copies of our solutions books.

It is my opinion that HP should once again produce application pacs for their calculators (the HP50g would be a good one for that) and solutions books for the HP35s. Barring that, I would encourage any of you here today to publish one in your particular discipline.