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HP 32S vs H 32SII

*Message #1 Posted by **John Beckwith** on 26 Oct 2003, 1:00 a.m.*

I have not followed the progression of HP calculators much over the last 25 years since I got out of college but have tried to make up for lost time since I found this HP museum's website. My HP 45 that I bought in 1974 is still serving me well and is used every day at work.

I have been saddened recently to find out that HP really seems to no longer make what I would consider to be a good scientific calculator that STILL USES RPN!

As a result I have decided to buy an HP 32S and maybe an HP 21 or 42S as well (E-bay perhaps). I have a 9 year old son and want to get something that he might be able to use later. I know the HP 21 somewhat as I have used the one my sister has that she bought when she was in college but really know nothing about the 32S (or 42S for that matter). I sure hope that HP will bring out something before he gets to high school and college.

Anyway, to the real reason for my post. I have a basic question about the 32S. It seems that there are 2 versions; a 32S and a 32S series II. What are the differences? I have looked over this website but can not seem to find anything on the difference in the 2 versions.

Besides that, does anyone have any comments regarding my quest involving these calculators or have any suggestions on these or any other models?

Sincerely,

John Beckwith

RPN Calculators

*Message #2 Posted by **John Limpert** on 26 Oct 2003, 1:40 a.m.,*
in response to message #1 by John Beckwith

How much money do you want to spend? If price were no object, I would get an HP-15C or HP-32SII. Those are both compact scientific RPN calculators with plenty of bells and whistles. The problem is that the prices on those models reflect their desirability and scarcity. If you don't mind a larger calculator, you can find some good deals on the HP-28C/S, HP-48S/SX and HP-48G. I think the HP-48S/SX is an excellent value if you don't mind its incompatibility with some of the

programs that are written for the HP-48G/GX. The problem with the LED models is the rechargeable battery packs. They eventually fail and they have to be rebuilt, since new battery packs are no longer made by HP.

Re: HP 32S vs H 32SII

*Message #3 Posted by **James Stephens** on 26 Oct 2003, 9:56 a.m.,*
in response to message #1 by John Beckwith

Hi John,

I have one of each: 32S and 32S II, and I'll provide you a brief--but by no means expert--answer. The 32S II has two shift keys, vs. the one shift key on the 32S, so a lot of the keys on the 32S II have double shift functions. The 32S has a lot of menu driven features, which eliminated the need for double shifted keys, and made for a really clean keyboard to boot. The 32S was not in production for a long time, and when it was replaced by the 32S II HP "unburied" a lot of functions that had required digging into a menu for access. For example, on the 32S II the factorial is left shift > 1/x, whereas on the 32S you access it through a menu that is brought up as shift > prob. The stat functions are improved on the 32S II with the introduction of sample standard deviation in addition to the population SD available on the 32S, the 32S II has fraction capabilty and a few conversions (cm/in, kg/lb, Celsius/Fahrenheit). A really obvious difference is the perenthisis on the 32S II, which are used in programming equations with an + sign.

Both are great calculators. Do have a look at the HP 33S (see Samson Cables), for example. This is the replacement for the 32 series, and you'll find many postings in this forum, mainly concerning it's rather odd appearance. Chevron-shaped keyboard or not, I'm looking forward to getting one in my hands.

Best regards, Jim

Re: HP 32S vs H 32SII

*Message #4 Posted by **Tom Sherman** on 26 Oct 2003, 9:57 a.m.,*
in response to message #1 by John Beckwith

John,

A striking difference between the 32S and the 32SII is the fact that the 32S uses an RPN-entry solver, whereas the 32SII uses algebraic entry for its solver. In my opinion, the algebraic solver is much easier to use, even for RPN enthusiasts. For example, if you want to put Newton's second law into the algebraic solver, you just write in f=m*a. To do the same in the RPN solver, you have to write f[enter]m[enter]a*-. The RPN solver does not allow equations to be written (it has no = sign), so equations have to be converted to expressions by subtracting one side of the equation from the other. An excellent explanation of the RPN solver on the 32S is given on the HP Museum site under the description of the 32S.

The best algebraic solvers, in my opinion, are found on the 27S and 19BII calculators, but these models are not otherwise programmable. If you have not used an algebraic solver before, it is almost indecently easy and convenient. It takes the place of having to write, for example, a BASIC program to do the same thing. The

solver will numerically determine an implicit variable, even when there is no means algebraically for making the variable explicit. For example, in the equation R^x = S^x + T^x, given values for R, S, and T, it will find x, even though there is no algebraic means for solving for x, that is, for putting x explicitly on the left-hand side of the equation.

Another difference between the 32S and the 32SII is that the the 32S has only one shift key, and makes greater use of menus on the screen. The 32SII has two shift keys, uses fewer screen menus, but has a more cluttered keyboard. I find the 32SII keyboard a little hard to read, but I think the algebraic solver makes up for it.

Tom

Re: HP 32S vs H 32SII

*Message #5 Posted by **Erik Ehrling (Sweden)** on 26 Oct 2003, 2:15 p.m.,*
in response to message #1 by John Beckwith

A radical suggestion: How about considering buying a HP-42S instead of a HP-32SII? It might be slightly more expensive on eBay, but it has much more memory (7.2K vs 384 bytes) and a two line graphical LCD. Also, as it is program compatible with the HP-41CV there is a much larger program base for it. Of course, it is ultimately a question of taste, but personally, if I had to choose between the HP-32SII and the HP-42S I would definitely prefer the latter...

Regards, Erik Ehrling (Sweden)

Re: HP 32S vs H 32SII (worse with every new model)

*Message #6 Posted by **Norm** on 26 Oct 2003, 3:17 p.m.,*
in response to message #1 by John Beckwith

Although many will disagree, I recommend the basic HP-32S, even though it was not produced in large numbers and may cost more to locate a used one.

* * * The reasoning:

A calculator is not supposed to do an infinite amount of tasks. It is used for simpler things. If you want to do something really complicated, you'd use a PC instead.

THEREFORE, the HP-32S is a nice little package of 'just the right stuff'. The keyboard is not too complicated. The single shift key (orange button) lends itself to clarity and understanding. Whereas the HP-32Sii is annoyingly complicated just by looking at the two shift keys and the humongous amount of stuff on the keyboard. I have a "fleet" of HP-32S units that I keep kicking around the house. About 3 or 4 of them last time I counted. I just grab the closest one to do some calculations, and save the HP-34C for special occasions, like bringing out finest red wine.

Another negative about HP-32Sii is that they kept moving production around to cheaper & cheaper facilities, and plenty of the later versions have got painted key legends that aren't as bold and can rub off with usage.

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As a rule of thumb (setting aside the 41C for a moment as in a world of its own) HP calculators got worse with every single model release. HP-34C was the best of all, a stunning marvel of cosmetic cool-ness and a concise vision of what it was supposed to do, all in the prehistoric "relays & diodes" era of about 1979.

In other words, a graph of the "desirability" of the scientific calculators from HP looks like a ski slope.

So then came HP-32S, which gave us the long battery life and slim profile, via LCD and CMOS, but with a feeling of cheapness and a tendency of the display to fill up with dust & dirt because HP was too indifferent to seal it up properly. And an entirely "disposable" design philosophy, which means you aren't going to have much luck cleaning up a dirty one.

NEXT came HP-32Sii, which over-cluttered the keyboard with a bunch of 'stuff' (metric conversions, or whatever) and which pioneered rub-off key legends in the later models. Therefore, HP-32Sii is worse than its predecessor.

THEN THEY DISCONTINUED ALL THE SCIENTIFIC CALCULATORS (that's about when yours truly showed up at HP Museum) of course, what's worse than not having an HP-32Sii ?? Why, having no calculator at all. So that is what HP did in order to maintain the downward slope on our calculator graph.

NOT TO BE OUTDONE, HP has continued the trend. What could be worse than having no calculator at all? Why, an HP-33S of course. :o| Featuring a keyboard bent into the shape of a Chevron gas station emblem, you would be better off owning no calculator at all, than owning an HP-33S.

If HP continues the trend, what types of features will be offered AFTER HP-33S ?????? keys with no legends? no keys? Vulcan mind-meld interface ?

Re: HP 32S vs H 32SII (worse with every new model)

*Message #7 Posted by **Frank B. (Germany)** on 26 Oct 2003, 6:22 p.m.,*
in response to message #6 by Norm

I think it's just a matter of personal taste. I believe HP's calculator design peaked with the 15c and the 42s. I own a few HP calculators, and most of them are under display in my living room. But all my Spices are well hidden in a drawer because I think they are among the ugliest calculators HP ever produced.

Regarding the 33s: Has anybody tried this calculator yet? No? So nobody knows about keyboard quality or how one can work with this new keyboard design. Maybe it is much more ergonomic than the older HP designs. Maybe not. To tell one has to try one.

Frank.

Re: HP calculators got worse ...

*Message #8 Posted by **Valentin Albillo** on 26 Oct 2003, 6:59 p.m.,*
in response to message #6 by Norm

Norm posted:

"HP calculators got worse with every single model release. HP-34C was the best of all, a stunning marvel of cosmetic cool-ness and a concise vision of what it was supposed to do ..."

Surely you're not being fair to the HP-15C, are you ? I'm a big fan of the HP-34C, wrote a whole "Solutions Book" for it (published by HP, "Advanced Mathematics") and know the machine inside out, including its "synthetics", so to speak.

But certainly, the HP-15C is a much better machine in all counts: better physical construction and reliability, no weak parts or "Achilles' heel" points at all, far smaller, lighter and thus 'pocketable', its batteries last decades instead of hours (no charger), much larger memory, much more advanced functionality (matrices, complex numbers), better display, etc, etc, etc.

I concede that everyone's entitled to his own opinion and tastes, but your statement "HP calculators got worse with every single model released" seems to me absolutely wrong and unfair when applied to the former HP-34C and the later HP-15C. The HP-15C certainly was a better model than the 34C, and denying it or ignoring it is just futile and unreasonable.

Best regards from V.

Hello V. Albillo

*Message #9 Posted by **Norm** on 27 Oct 2003, 5:13 a.m.,*
in response to message #8 by Valentin Albillo

Hello V. Albillo, yes you are right that 15C is good. I have no problem with it.

Of course if not for oversimplification, I would not have a situation to turn into a posting. To presume they always get worse, one must conveniently forget about 15C and also 41C.

Wasn't 15C a bridge between 34C and 32S ??? But they kept making 15C for awhile.

Re: Hello V. Albillo

*Message #10 Posted by **Valentin Albillo** on 27 Oct 2003, 6:53 a.m.,*
in response to message #9 by Norm

Hi, Norm:

Norm posted: *"Hello V. Albillo"*

You can call me "Valentin", if you want to ... :-)

"Wasn't 15C a bridge between 34C and 32S ??? But they kept making 15C for awhile."

Yes, the 32S and the 15C overlapped for a few months before the 15C was finally discontinued, but no, the 15C was never intended as a bridge between the 34C and the 32S.

The whole Voyager series (11C, 15C, ...) was a 'stopgap' series while the "Titan" project continued. This "Titan" was intended to be the 41C successor but in the end it became the HP-71B instead. The 15C was then meant to be the most advanced, small pocketable pure calculator ever, so the very best algorithms known to man (or even invented rigth then, for the purpose) were implemented on its hardware, to ensure the utmost feasible precision for every operation and function, from hyperbolics to complex-valued operations to matrices. They fully succeeded an the rest is history. You can read a lot about it in this very interesting paper, of you haven't seen it already:

Mathematics written in sand

As for the 32S, it's not quite the 15C's sucessor (that would be the 42S), and though it's much faster and has some other desirable improvements, it regrettably lacks many important 15C's features such as comprehensive, integrated complex-number functionality, matrix operations, and larger RAM, among others.

Matter of fact, you can fit much larger, more complex programs in the 15C than you can in the 32S, and using the SOLVE and INTEGRATE features won't leave you absolutely starved for memory for the expression you're trying to solve or integrate, let alone if you want to include those advanced features in a program !

The conclusion is: far from being a bridge, the 15C is actually a far more powerful programmable calculator than the 32S is, and so you can attack much more complex applications with it, albeit more slowly. The 42S is the real sucessor to both the 15C and the 41C, even though it still lacks some important features that the 15C has (try to enter 4 complex numbers on the RPN stack at a time)

Best regards from V.

Re: HP 32S vs H 32SII

*Message #11 Posted by **Paul Johnson** on 27 Oct 2003, 12:30 a.m.,*
in response to message #1 by John Beckwith

I would NOT recomend you buy a 'vintage' HP RPN calculator for your 9 year old. The current prices reflect the fact that they are collectors items, not to be carelessly tossed into a kid's backpack. I've got 3 kids in college, and one in high school. When my kids 'needed' a calculator for class, it generally involved a graphics model, specific to the class. The same calculator used by the rest of the class (and the teacher) was highly recomended. Before that time comes, a $9.95 algebraic will probably take care of most of your son's immediate needs.

You really hit the point: "..HP really seems to no longer make what I would consider to be a good scientific calculator that STILL USES RPN!" Everyone visiting this site has been singing this song for several years! Don't hold your breath for the 33s. If it is just another dying ember of the RPN funeral pyre, you won't miss anything. If it takes off and finally turns HP calculators around, it will be available for a while, at least until it's replaced by a better model. Before you place too much hope in that happening, repeat that point you already made, and repeat it again until you understand it. Don't expect a miracle. HP's calculator future has been all too clear for the past few years.

By the time your son gets into college, don't plan on him looking to 15 or 20 year old calculator technology to meet his needs. The calculators available then will no doubt be more advanced then those we have today. I expect that he'll have more of a pocket computer than a pocket calculator.

If you want a "good scientific calculator that STILL USES RPN", by all means look for a vintage bargain. Use it, but also take care of it. It may have to last a long time. As for your son, unless he expresses an interest in collectable calculator, I'd look towards a newer model.

Wait.... go ahead and give one to your kid (long)

*Message #12 Posted by **Norm** on 27 Oct 2003, 5:30 a.m.,*
in response to message #11 by Paul Johnson

Suggest that one could indeed teach a kid to appreciate math with use of an HP-32S, HP-32Sii etc. And if the kid knows RPN and can crunch numbers effectively with such a calculator, he will be ahead for life.

Though not my favorite, the abundant quantity of HP-32Sii would make it an ideal choice, with an ongoing used supply. (HP-32S my favorite, though smaller pool of surviving units). Face it..... functional working HP-32Sii will be available for the next 50-60 years, that's long enough for your kid if he wants to own a couple of them in his life.

Usage of the "RPN" calculator has value all its own..... it is a tool that can be used. It is like a good milling machine or a good skilsaw. It does not go obsolete. Its value does not diminish with time. It cannot be made obsolete anymore than the laws of physics (F=mA, KE=1/2mv^2 etc) can be made obsolete. Supposed plan to come up with something "better" will not work when the original was already all you need... how do you come up with "better than" F=ma for example. Same with an HP-32S .

Casual number crunching with a calculator is an absolute requirement that will not change. It must be done effectively and efficiently. RPN is a must. Keyboard that does not look like a cowcatcher is a must. Since space aliens from the planet Zargon took over HP, and they don't make the right item anymore, give your kid something real..... give him the 32Sii for example, and tell him "this is it" it can meet his needs for a lifetime.

SURE your kid will have plenty of teachers who demand he use the latest flim-flam piece of junk that is free at the bottom of the Cheerios box.... yeah, a TI-83 or whatever, and yes, he will have to use it for that class. For long-lasting personal use, a 32Sii could last for life however. I already got a chuckle how the only kid I am in contact with who has a TI graphing calculator???? here was what he said..... played video games on it.... until it busted, and no it didn't heal itself... its still busted. Hmmmmmmmmm thats not how it went when I dug deep and bought my HP-34C brand new from a discount NY camera shop back in 1980. I learned and learned, and no it didn't bust.

Prices for HP-32Sii remain sky-high on eBay, probably because it is the most abundant and available choice if somebody wants to keep working with the 32Sii long-term with no factories producing it.

****

HEY about various posters here who defend marketeers as these brilliant people? How come the marketeers dont recognize the sky-high eBay prices as proof of a huge marketplace for things like HP-32Sii ??? Wait I already know the skeptics answer. "Ahh all those 32Sii moving thru eBay?? Thats just a few crackpot collectors, a few loose lug nuts from eBay, just a handful of units going to wacked out OLD-HP enthusiasts". But I tell you waht..... you got a dozen or more units a week going thru eBay at astronomical prices..... not to mention all the other models also... and that's proof of a deep, deep, long lasting interest in the product, and 100% proof of a market for a REAL scientific calculator same as they made before, the "old HP" style, the need is not diminished.

So get your kid that HP-32S, or HP-32Sii .

Would be a sad mistake [LONG]

*Message #13 Posted by **Valentin Albillo** on 27 Oct 2003, 7:58 a.m.,*
in response to message #12 by Norm

Norm posted:

"Suggest that one could indeed teach a kid to appreciate math with use of an HP-32S, HP-32Sii etc. And if the kid knows RPN and can crunch numbers effectively with such a calculator, he will be ahead for life."

He won't. He will be handicapped for life instead, not knowing well how to use nor being comfortable with anything except those ultra-rare, nobody-knows-them RPN things. Kids are already way reluctant of maths to tell them that instead of keying in:

```
COST = PRICE * QUANTITY
```

they must do it thusly:

```
PRICE, [ENTER], QUANTITY, *, COST, STO
```

Comparing RPN to 1980's primitive algebraic calculators is blinding oneself. Modern algebraic calculators are way more adequate to really understand and enjoy doing math.

"Face it..... functional working HP-32Sii will be available for the next 50-60 years"

Wrong. That's wishful thinking. All HP32SII (and all HP-15C for that matter) will be absolutely dead before 35-40 years have elapsed since they were built, due to unavoidable and irreversible aging of their electronics components, even if left unused and properly stored. That's still plenty of time, but saving a number of machines to ensure using one in a few decades from now on, is pathetically futile: all of them will be nonfunctional by then.

Usage of the "RPN" calculator has value all its own..... it is a tool that can be used. It is like a good milling machine or a good skilsaw. It does not go obsolete.

Wrong again. They ARE obsolete right now. Of course they can still be used profitably, and for some very special purpose applications they may be the only choice, but that's *despite* they being RPN, not *because* they are RPN. With today larger RAMs, displays and speeds, RPN has lost all its former superiority, and can even become part of the problem instead of the solution.

"Supposed plan to come up with something "better" will not work when the original was already all you need... how do you come up with "better than" F=ma for example."

See ? You wrote "F=ma" instead of "m, ENTER, a, *, F, STO" ;-) You see, you're right, then. Bettering "F=ma" is not possible, and "m, ENTER, a, *, F, STO" is not going to do it for most people :-)

"It must be done effectively and efficiently. RPN is a must.

Was a must. It isn't anymore. Can be used, of course, for all of us old timers is the preferred way, of course, but it isn't a "must" anymore for most anyone. If anything, most people consider it a "must avoid" ...

"give your kid something real..... give him the 32Sii for example, and tell him "this is it" it can meet his needs for a lifetime.

For all the above reasons, neither "this is it" nor "a lifetime" are statements that can be reasonably justified.

"So get your kid that HP-32S, or HP-32Sii."

Anyone can do with their own kids whatever he feels best in educational matters, but for me, it would be a terrible mistake to try and make your children RPN fanatics. You'll be doing them a real disservice, and will only succeed in handicapping them for life in calculating matters.

For my own children, this is the approach I've taken:

- First, make sure they know how to use and program efficiently a modern, large screen BASIC-programmable calculator (like most any vintage SHARP), to the point that they actually like and enjoy solving their home assignments with it and even trying things on their own. The inherent easiness in doing calculations and writing simple programs, taking out all drudgery, will make wonders in reinforcing their feeling of success.

- Then, once the children actually like math and find themselves comfortable with the machine, I tell them there is an alternate system, called RPN, which works such and such, and they learn to use it as if it were kind of a game, a mere curiosity.

- Finally, they use the algebraic BASIC machine for most everything, though they can occasionally grab and use an RPN machine if need be. From time to time, I can show them how some simple program would be written in RPN, to propose them simple RPN programming tasks, as *intelectual challenges*, just for *fun*.

Want an example ? My 11-year old daughter was taught divisibility at school yesterday. One of her home duties was to find the divisors of a given, small number. She took her SHARP PC-1350 and produced this program within a minute:

```
10 INPUT "NUMBER ? "; N
20 FOR D = 1 TO N
30 IF N/D = INT(N/D) PRINT "DIVISOR = ";D
40 NEXT D
50 PRINT "NO MORE DIVISORS"
```

She pressed RUN, keyed in a number, and lo and behold, all divisors were duly displayed. Her simple, intuitive program was readily written and was extremely simple to understand, she even would go on to show and explain it to her classmates.

Do you think the RPN version would be so easily written, in such a short time, so intuitively, and so simply understood ? Do you think it would make the math look simpler ? Or would it instead be a problem in itself, obfuscating the simple underlying procedure with its cryptic, machine-like RPN code ?

RPN is Ok either as an intellectual amusement or real use for us old timers and fanatics of classic HP RPN and RPL machines, but to burden your 21st century kids with obsolete, long ago surpassed, machine-like notations ??? Trust me, forget it.

Best regards from V.

Edited: 27 Oct 2003, 10:06 a.m.

Hi again, Valentin (long)

*Message #14 Posted by **Norm** on 27 Oct 2003, 10:12 p.m.,*
in response to message #13 by Valentin Albillo

Hi again, Valentin.

I noted your comments about 15C being superior to 32S or 32Sii, and what you say seems believable enough.

Even if it has better complex number support, etc etc tell you a couple things I never liked about 15C..... the display width seemed a bit narrow, and, I never liked the thing being wider-than-taller. Sure I know some people like that.

For me it has to do with that my desktop space is limited, esp., say, if I was at a college wooden student desk, in some class. The 32S is taller than wider, and this is better suited to putting on the desk in front of me. To hell with the complex numbers..... I have seldom needed to crunch them using a calculator.

***** Now about kids and use of RPN, all I can say is for you to reply sentence-by-sentence, so eager to prove me wrong, well, I must surely be right just by how frantically you are typing. Guess I hit a nerve there?

I really don't agree with what you are saying. I advocate what I typed before. You say all 32Sii will be dead in 35 years not 60. That's just not true. As an electrical engineer, I know what are the components and which ones are going to age (and which ones are not). No I do not have a bill-of-materials for these units, but they should be doing just fine then. Frankly I am confident my HP-34C will be doing fine 60 years from now, and it is already 20 years old. (IT IS JUST THIS TYPE OF SITUATION THAT INFURIATES A CARLY FIORINA TYPE..... imagine a product still running 80 years after it was built..... I mean, you don't get to screw your customers and make them by the same thing over and over!!!!!!)

So from there, you are telling me that RPN is obsolete, NO i do not agree. And then you are making that classic error, equating a personal computer running BASIC, to a pocket calculator.

A computer is a computer. A calculator is a calculator. No they are not the same. They are meant to be different, Valentin. You can use them at different times for different tasks.

A handheld "jigsaw" from Home Depot is a "saw". A 3 foot diameter circular saw at a sawmill is also a "saw". Either of them is used to cut wood. Neither of them is inherently "good" and neither is inherently "bad". Neither of them is obsolete!!! Either of them is a "saw" even though they are used for completely different types of jobs.

RPN is NOT obsolete, an RPN calculator is NOT obsolete, and it is the finest available tool for specific types of jobs. BASIC on a computer is a fine tool for other types of jobs (quick little bits of software like you gave to your daughter).

I entirely and adamently disagree with your conclusions, and I absolutely would continue to advocate that teaching a kid an HP-32Sii would be a very very fine gift (not an 11 year old, no. We're talking about the last few years of high school).

Valentin, haven't you heard the stories lately from kids who ARE using 32Sii in their high school & college math classes? They get everything done FAST and walk out of their tests early. I think you should read a specific POST OF MINE that is on the "HP Museum memories forum"..... let's see..... its #178

Nothing's changed, dude, and nothing ever will. If you have a quick need to evaluate a formula, the RPN is the best way to do it. That's why the engineers invented it, and that's why the MBA/marketeers and others lacking technical expertise discontinued it. They discontinue things that work.

I absolutely do not see what you are talking about with your F=ma discussion. I use RPN and I compute things like that all the time quickly and efficiently. No I do not say " m enter a * STO" or whatever you were trying to come up with. Why would I use "STO" that is for storing into a register.

What you were saying really does not make sense. Thanks anyway though for replying and expressing your view . Check out #178 if you want to see where I am coming from. That type of story is unchanged to this day, it's still happening, its just that HP quit making RPN units at the factory, so we get to fight over used ones on eBay.

Re: Hi again, Valentin (long)

*Message #15 Posted by **John Beckwith** on 27 Oct 2003, 10:47 p.m.,*
in response to message #14 by Norm

Hi Norm,

Thanks for your thoughts. As a fellow EE, it seems, at least at first blush, that you and I agree a bit about the uses of RPN and the difference between a CALCULATOR and a COMPUTER within a calculator.

I wrote and posted my ideas (interupted several times in the creation) about the different uses. No sooner do I post then I see your post.

It will be interesting to see what the next comments are.

Sincerely,

John Beckwith

Hi again, Norm [LONG]

*Message #16 Posted by **Valentin Albillo** on 28 Oct 2003, 6:13 a.m.,*
in response to message #14 by Norm

Hi again, Norm:

First of all, thanks for your mesurate and kind reply, I know that my position on RPN is not exactly popular in this forum, so I'm all the more grateful for you not flaming me outright. Now some comments:

Norm posted: *" I never liked about 15C [...] the thing being wider-than-taller. Sure I know some people like that."*

Sure. I do, and all the millions of financial users that did buy the HP-12C did also like it, a lot. It's 'classy' and neatly differentiated their expensive, horizontal financial HP calculator from the cheap-looking vertical concoctions used by the competence. That's one of the reasons why it sold in the millions, it marked differences.

"To hell with the complex numbers..... I have seldom needed to crunch them using a calculator."

Perhaps it's just that as your beloved and much preferred HP-34C can't handle them, you simply resorted to other means when dealing with them. Because I can't believe that an Electrical Engineer like yourself wouldn't need to use complex numbers almost constantly for circuits computations. I know many, many EE, colleagues of mine, and all of them did own and used an HP-15C in their time, constantly. Till the HP-71B+Math ROM came (and then the 42S), it was the easiest and most efficient way by far to deal with complex numbers.

"All I can say is for you to reply sentence-by-sentence, so eager to prove me wrong, well, I must surely be right just by how frantically you are typing. Guess I hit a nerve there?"

Not at all ! :-) Replying sentence-by-sentence is just my style, I do it in all my e-mails, either in this forum or private, as you can easily see in the Archives. Also, I'm not in the least eager to prove you wrong, because these matters are nearly 'religious-kind', and trying to convince anyone or proving anyone wrong is just futile, doomed to failure, and serves no purpose. And finally, I don't type frantically at all, I've been typing all my life at tremendous speeds, and can write a message this long or longer almost as fast as I speak. If that makes you think you're right, well, what can I say ? :-)

"I really don't agree with what you are saying. I advocate what I typed before."

That's perfect with me. You're fully entitled to your own opinions, and I was just trying to offer you a set of arguments why I thought otherwise. You don't agree ? That suits me fine. Mine was a well-meant advice, if you don't want to take it, that's alright with me. Maybe you'll see things differently eventually, maybe not. It won't affect me in the least.

"Frankly I am confident my HP-34C will be doing fine 60 years from now, and it is already 20 years old."

What can I say ? I applaud your unfounded faith in such a possibility, but the chances are nil. Consider yourself fortunate if it will last another 20 years, at most. On the other hand, there will always be emulators/simulators available, so don't worry.

"Then you are making that classic error, equating a personal computer running BASIC, to a pocket calculator."

It's not an error on my part. Seems to me you've had little to no experience using handhelds other than HP, probably due to your extreme prejudice against anything not RPN. Should you have owned and get to know some of those machines, you'd see that they are handheld *calculators*, only using an underlying algebraic system instead of RPN, and BASIC as program language, instead of RPN-style programming. Saying they are not calculators doesn't quite cut it, even in the back of the machines themselves you can read "Electronic Calculator Model such-and-such". They do

have an immediate mode, and specific functions on specific keys (LN, SIN, etc), so there's nothing to differentiate them from any other RPN *calculator* whatsoever. Saying they are not calculators but computers is a lame attempt to define them out of existence.

"I entirely and adamently disagree with your conclusions, and I absolutely would continue to advocate that teaching a kid an HP-32Sii would be a very very fine gift"

Fine with me. I fully respect your stand. Go ahead.

"haven't you heard the stories lately from kids who ARE using 32Sii in their high school & college math classes? They get everything done FAST and walk out of their tests early.

And how can you be so sure that their fast performance is due *just* to their using the 32SII ? Seems to me that a father giving his son a 32SII is *not* a typical father, much more likely to be a knowledgeable, technically-oriented father, that probably understands his math quite well, and can and will eagerly teach it to his son in clear terms, helping him understand the concepts. Evidently, such a child will perform better and faster at any test, but it's not so much due to their using an RPN calculator, but for the fact that his father has positively influenced his math learning and abilities, don't you think ? That being so, would you doubt that if same child with like kind of father be given a comparable non-RPN machine, wouldn't he perform equally well ?

"If you have a quick need to evaluate a formula, the RPN is the best way to do it."

Put it to test. Take some suitable formula (like Mach's number) and pit two boys, one armed with an RPN calculator and the other with some modern algebraic model he knows inside out, and test the times. For added panache, ask for immediate recomputation of same formula changing some parameter.

"That's why the engineers invented it, and that's why the MBA/marketeers and others lacking technical expertise discontinued it. They discontinue things that work."

That's an oversimplification and somewhat 'paranoid' :-) Products that don't sell are discontinued, if they sell they aren't. Take the HP-12C as an example. It's never been discontinued because it sold in the millions, while other wonderful similar machines such as the HP-15C and HP-16C just didn't so out they went. And the fact, whether you and me like it or not, is that RPN doesn't sell in quantities which justify sizable investments in research and marketing, and HP is a profit-driven company, not a charity. If it doesn't sell, fewer and fewer resources (i.e.: money) will be allocated to the product, and eventually it will be cancelled, period.

As for engineers inventing it that why, don't oversimplify: HP engineers of the time were confronted with the fact that RAM was incredibly expensive then (a mere 49 extra bytes meant US $100 or more), and ROM wasn't cheap either. So, instead of implementing a multi-level internal stack to hold the operands and operators in some algebraic expression to be evaluated, and having to microprogram in ROM the necessary

parsing of the expression and hierarchy of operators, they simplified in a most elegant and practical way by using RPN instead: the user would do the parsing (thus saving space in ROM and microprogramming) and no hierarchy of operations would be needed.

All very neat, tidy, elegant, and above all, economically feasible, money-saving, space-saving. BUT (and a big BUT that HP has failed to sell to the masses) the user would be forced to DO the parsing from algebraic to stack notation *himself*, and would need to adopt a new paradigm.

As you well know, users were more than happy to do that at the time, given thay they would get better performance at a high but still affordable price. But nowadays RAM and ROM aren't a problem anymore, and users do not need nor want to do the 'parsing' themselves, you see. They just want results, and want them fast and effortlessly. Time for the machine to use its huge RAM and ROM and do the work instead.

That's why masses are shying away from RPN and that's why RPN is obsolete. I'm as sorry as you are, I've been programming in RPN for the last 27 years and still write RPN programs (have you seen any of my 34C programs ?). But I'm neither fanatic nor blind, and can perfectly see that there are much better ways of calculating and computing in a handheld, even a vintage one, let alone more modern units.

"I absolutely do not see what you are talking about with your F=ma discussion."

It was a well-meant joke.

"That you were saying really does not make sense. Thanks anyway though for replying and expressing your view."

Same here. Thanks again for your kind, articulate reply. I've always enjoyed your very funny postings, even if they are often somewhat 'on the far side', and, at any rate, how can I not like a person who's a fervent and passionate admirer and promoter of my beloved HP-34C ? :-)

Take care. Best regards from V.

Me & John vs. Valentin (LONG)

Message #17 Posted by ***Norm*** *on 28 Oct 2003, 3:45 p.m.,*
in response to message #16 by Valentin Albillo

Hi Valentin, it's good to trade a bunch of views on the chat board. Both of us are touch typists I tell you that for nothing. Maybe from here this will fizzle out a little don't have that much more to tell you. Your view that "RPN is obsolete" however is
(a) incorrect
(b) unpopular with the types on this chat board

although there are an increasing number of posters here who are thinking like you..... who aren't loyal to RPN but like the latest "cereal box" trinkets from "KINPO" (HP calculator made in China) . To that end, note a nearby post from "GE" he says "THIS IS A MUSEUM" and he doesn't want people talking about those newest cereal box toys. (GE's censorship will not work of course. A wild idea might be that Dave

Hicks could have two chat boards..... RPN and non-RPN, though not enough posters to fill them both..... maybe many) chat boards divided by model number ??

I like what John says about "CALCULATOR" vs. "COMPUTER" and did he also infer "computer within a calculator" ?? (That last one a 49G with the little LCD screen etc etc) I stand by the view.... any is a saw.... cuts wood.... but you need different saws for different jobs.

HP (and some like Valentin) are enamored with the view that a calculator is now a "COMPUTER IN A CALCULATOR" (the graphing calculator craze). I don't agree. A calculator has a niche of evaluating little formulas. I have y=f(x) and maybe its some funny trigonometry formula and I want to evaluate it so that I can continue my design work with the numbers. That's what a calculator is for. Giving me a cheezy, terribly low-res graph on some 100 x 150 pixel (?) screen on a calculator is
(a) useless
(b) interferes with me getting my work done
because now the calculator is complicated, difficult to use, has a bunch of worthless chrome hood ornaments on it that are just getting in the way.

I start good debates on this chat board sometimes.... I bought a 48G+ (?) about 4 months ago..... used it for a couple of days... found it so atrocious I declared it rotten goods and got rid of it to the first taker (some guy in England, of all things). Its difficult and annoying to use, lacks bedrock foundational principles such as RPN and a clean, well-defined keypad.

Valentin you mentioned "thank you for not flaming" on this chat board. I've visited here awhile.... this chat board has some of the most thoughtful and intelligent people I've bumped into..... would say that flaming is usually for more derogatory (and low-IQ) environments such as the stock market chat boards. So no need to say 'thanks' its been the way of it around here. So atrocious is the newest model (HP-33S) that I nearly started a flame-war a couple weeks ago... regretted it of course.

Valentin you object to my comment: "To hell with the complex numbers"..... I have seldom needed to crunch them using a calculator."

Let me elaborate..... my chosen engineering skill is analog electronic design (LaPlace transform analysis of LRC circuits, etc). LaPlace transforms specifically allow us to do much less evaluation overall of the complex numbers. We learn the underlying theory of what circuits do (a pole, a zero, a rolloff, a 3db point, a 20db/decade slope, a 40 db/decade slope) and the LaPlace transforms, although miserably complicated math, reduce it all to THE SIMPLEST OF ALGEBRA. Frankly I can do my 'complex numbers' on the 4-banger algebraic calculator on my wrist (CASIO CA-602) even though it has not even a "pi" button (the biggest detractor is lack of a square-root button) and the reason I can use it for complex numbers???

BECAUSE I KNOW THE THEORY IN MY HEAD, I was taught by very good professors, in the aerospace era, and I learned it the way they wanted me to. As a result, evaluation of formulas or learning is typically a modest and simple thing that is easily evaluated. In the simplest of cases, I could have one resistor and one capacitor and I want to know their 3dB breakpoint. Although this is entirely a result of two complex vector impedances varying with frequency, I know that the breakpoint is 1/2*pi*RC and I can do that on a 4-banger. THIS is my

comment about I dont care about complex numbers on the 15C... its nice that it has them of course.... but if anything, means somebody didn't appreciate the great empowerment of the LaPlace transform theory AND PRACTICE as taught in the EE department.

Valentin wrote: >> I can't believe that an Electrical Engineer like yourself wouldn't need to use complex numbers almost constantly for circuits computations. I know many, many EE, colleagues of mine, and all of them did own and used an HP-15C in their time, constantly.

I stand firm by the "HP-34C" mindset and its extension into its obvious successors, 32S and 32Sii . If I did have two complex numbers and want to multiply them, etc., I can easily type the simplest of little programs into a 34C, use the registers and do that in seconds. I seldom need to.

Valentin wrote: >> I'm not in the least eager to prove you wrong, and can write a message this long or longer almost as fast as I speak. If that makes you think you're right, well, what can I say ? :-)

You are right of course, that was just an attempt to grab your necktie and use it to my advantage in this small scuffle :o)

To wrap up, I also stand by that there is no reason that a 32Sii wont function 60 years from now. Sure the keyboard could be "typed to death" like if the domes break apart. I dont use mine that much. The 34C can fail at its electrolytic capacitors (replace them with tantalum, those do not fail). The biggest problem with 34C is the silicon chips are too fragile in regards to static damage, and those are suffering atrition as we speak because people take them apart and blow the chips with their fingers. Equally bad, the "solderless" design (incredibly stupid manufacturing decision) gets corrosion at the solderless joints, the circuit opens, and the chips can be damaged or degraded just by running it in that condition. HOWEVER the 32S and 32Sii are very reliable, and probably don't even have electrolytic caps in them. They will run 60 years from now. I am the EE, I win you lose. :o| And the 34C will run, but ONLY IN THE CARE of skilled people who understand its frail 1970's interior very well (I'm getting to be in that category now).

You mention that RPN was created ONLY DUE TO RAM BEING EXPENSIVE, etc etc. WELL, even if that was the original root cause of RPN, it's NOT THE REASON FOR IT. EASE OF USE IS THE REASON !!!!!!! It allows a person to quickly bang out results by holding the intermediate results in a "STACK". You advocate an "algebraic calculator" but this is so wrong it aint funny!! Why? Because you have to start an entire new step..... type in the formula as an abstract!!!!!!! You don't do that with an RPN calculator. If you have a formula, that's either in your head, on a chalkboard, or on a piece of paper in front of you. The formula stays there..... only the numbers go into the calculator, by typing keystrokes. IF I WANT THE FORMULA IN THE CALCULATOR then I switch it to "PRGM" mode and I type the formula in a "language" of typing the keys themselves (which are stored as the program). This is so georgeously simple (in comparison to the tedium that you are burdened with , typing formulas into that 100 x 150 pixel display) that the RPN wins hands down. I dont care if it cost $20 to buy a byte of RAM in 1965 and that's the reason, or whatever. RPN evolved to being the most convenient and simplest of calculating methods, because it was friendly to intermediate results and you DONT HAVE TO do all that baloney that 48G+ users do.

HEY one thing I can tell U.... EVEN IN THE DAYS like 1980 and at MOMENTS like in my "memories post" (#178??) THERE WERE UNBELIEVERS. This is like church, my friend. It's about whether you are going to "BELIEVE" in RPN or not. Some will just say "no way I

dont believe, I worship some other God at some other church". Others keep the faith and show up every Sunday. Even at crowning defining moments that prove me right (memories post #178) NINE OUT OF TEN refused to believe in RPN. Well that's fine. The HP behavior to get rid of a wonderful thing, in a fit of corporate maliciousness, greed, selfishness, and non-attention to academic matters, leaves Mr. Hewlett and Mr. Packard rolling in their graves (hey are both of them dead, I dont keep track of all that) and is very unfair to those who DO BELIEVE.

You have also missed an important point that I often post here, Valentin. HP-15C, a calculator you like, was discontinued but HP-12C was not. This is a powerful statement AGAINST present HP management and the present rampage against RPN.

You said how fine that is (keeping 12c) because "HP-12C sells enough units, etc" . OK, then all that matters is profits and maximum greed and biggest pile of cash, right? Well for all who advocate THAT, you beter hope you don't get some weird brain tumor at some location in your head that only afflicts 150 patients a year and the only company that makes the unique probe or tool for it chose to provide the item NOT BECAUSE OF GREED but because they wished to solve an academically interesting problem and help some people on their way.

See, JOhnson & Johnson could be just like HP. They could say "well the largest cancer problem we've got is lung cancer, so lets sell tools only to fix LUNG CANCER and to hell with those funny little tools to fix all those other weird cancers, they were low-volume products and we can't stand those designers who work on that stuff anyway, so lets discontinue all that stuff and only sell the profitable LUNG CANCER tools because we sell millions a year of those"...

That would be foolish wouldn't it. For a corporation to do as HP has, which is to sell a product ONLY IF it sells millions of units and makes a giant pile of cash, is disgustingly irresponsible, juvenile, idiotic, and could originate only in the business school where they draw funny little graphs of how to make the biggest pile of money (which is all they care about) and I regularly try to make that point on this chat board and typically nobody gets it.

OVER AT AGILENT they have all kinds of absolutely world-class EE instruments... say a microwave impedance analyzer. And it has some funny little machined jig that holds, say, a weird surface mount part. So that you can make the measurement. And maybe they sell.....what..... about TEN A YEAR of that little machined jig. So they make it available because its academically necessary. (Dont stop me I'm on a roll) Carly Fiorina's behavior is disgustingly selfish and juvenile by comparison because they wont sell it unless they are going to make this huge pile of cash on millions of units. Under Carly (were she dictator of consumer-land) there would be no Universities, and be no academia, be no albert einstein and be no e=mc^2 because its not profitable enough for her.

MY POINT IS NOT YET MADE.... HP-15C can obviously co-exist on the same production line as HP-12C. THEY CONTINUE TO MAKE HP-12C and the only difference is the programming in the chip, and the front keyboard. So that's about multiple products off the same production line, and its about incremental sales. ITS ALSO ABOUT enjoying the continuing return on investment, on a thing that was already designed. The decision therefore to CANCEL 15C while KEEPING 12C is an example of simple corporate maliciousness, selfishness, and petty vandalism against the EE, scientific, and academic communities. HOWEVER THIS SITUATION (discontinue 15C, discontinue 32Sii, etc) is NOT explained by your saying "RPN is obsolete". They were already designed, and people were buying them. Help me along

here..... but surely hp-12C is RPN ??? Why not discontinue it then, since you clearly take the stance that RPN must be banished from the corporate factory production as well as by new learning of gifted young people??

OK, well, there's no flames here, no war here, just talk, and fast typists. And smiley faces :o) . Its been fun (though burndensome on our schedules) and there have ALWAYS been the unbelievers in regards to RPN, even in 1980, and they were always numerous. Its interesting how they took their warfare to the boardroom however and choked off the source (except for business people who can have their 12C).

ONE INCREDIBLE POINTER that you are wrong..... the continuing traffic on EBAY of HP "RPN" product is an absolute TORRENT of activity at high prices, and a very CLEAR indicator to any marketeer who has an IQ above 60 that HP is doing the WRONG thing by assaulting RPN and its followers..... the dollar volume and market demand for those discontinued items is NOT representative of 'a few crackpot collectors' etc etc. and with that final thought to logically win out over your stance, I wish you well and hope the time to trade this stuff was not too burdensome.

Best, - Norm

Re: Me & John vs. Valentin [very LONG!]

*Message #18 Posted by **Joesph** on 28 Oct 2003, 4:59 p.m.,*
in response to message #17 by Norm

This has started an interesting arguement. Here are my views:

The old system of RPN, with a 4 level stack, is terribly outdated. Yes, there is a small amount of people who love it, and they push ebay prices right up. But will these people be enough for HP to bother with?

Back when algebraic calculators were primitive, this system of RPN won hands down. The algebraic calcs did not understand precedence, and had a small limited amount of nested brackets.

However the new algebraics are much nicer. A typical scientific sharp has a 2 line display - one where you type the formula (and can modify it as wll), another where you get the result. You can clearly see the formula - not just have faith in an invisible and tiny stack (yes, I know 4 levels is adequate in theory, but i find it incredibly cramped).

Also, as someone else mentioned, challenge people to a contest - one using a HP classic HP RPN, anither using said sharp. Both have equal skill with their calcs. Race them - make them both enter a complicated formula, and evaluate it 3 times with different numbers. What do you think the result would be?

Now, include 2 more people in this race - one with a TI graphics calculator, the other with the new 49g Plus. The TI offers a few advantes of the sharp, but not many. It is worse in that the keyboard is poor (Sin, Cos, Square Root are all shifted) but better in that the formulate

can be modified easier.

Now, the person using the 49G Plus has the advantages of 'real' postfix notation, not HP's limited version. They have an unlimites stack (not that it is applicable, but nicer then 4 levels), with the first 6 or so levels visible. Whats more RPL is *symbolic*. They can enter the equation just as fast as the classic RPN user, if not faster because they can see what they are doing,

BUT they have a great advantage when it comes to evaluating the formula multiple times. Once the formula is on the stack, they press 'Enter' 3 times to DUP, Type a quick list o variables to modify eg {x 1 y 2 z 3} and press WHERE then ENTER. Write down the answer, then repeat 2 more times. By this time the TI user is still entering the formula, and the classic RPN user has been slowed down re-evaluating the formula. The Sharp user is somewhere in the middle, the 49g Plus user is almost certainly first.

Note that the TI can also do the 'WHERE' trick.

Now, just to make things interesting (grin), if you disagree with me, I'll let you pick a formula and we'll time each other. We are each permitted one practice run, if you want.

Joesph

RPN handed down to Moses directly from God (incredibly LONG)

*Message #19 Posted by **Norm** on 29 Oct 2003, 4:50 a.m.,*
in response to message #18 by Joesph

ha ha just kidding. havent you all had enough book-length posts from me for awhile now ??

Hey..... the 34C can easily win that CONTEST between 48G+, 32Sii, etc etc and you make a guy type in a formula. You guys want the algebraic graphing calc to win because the contestants have to type in the formula..... right???

OK but here's the deal. The contestants have never used any of these models before. They all are good students but they only used 1989 Casio scientifics before the great contest.

FOUR HOURS before the contest, each person gets a crash tutorial on THEIR model of calculator, by an avowed wizard and proponent of that calculator model. So, say you revere 48G+, you get FOUR HOURS to teach the guy how to use it.

UNDER THESE CONDITIONS, the 34C would clobber any of these other models, and clobber them real bad.

That's because the 34C guy will be done in mere minutes even though he only had 4 hours to get acquainted with it. And by the time that poor bastard with the 48G+ figures out how to turn it "on"and type in a formula with that miserable syntax/display/keyboard

language, everybody will have gone home and the janitor will be sweeping up !

MORAL: HP management can't expect me to waste half my life learning the idiosyncracies and irrationalities of their latest model..... I just wont buy it. I'll keep using the thing that had a bedrock foundational vision underneath it and CAN be substantially familiarized in about 4 hours ..... solo, with a thing called a 'getting acquainted booklet' (gasp, can't have something like that!).

Re: RPN handed down to Moses directly from God (incredibly LONG)

*Message #20 Posted by **Joesph** on 29 Oct 2003, 5:42 a.m.,*
in response to message #19 by Norm

sorry, but I learnt how to do simple stuff like that in under an hour :-) It is nowhere near as hard to get started as you claim.

The 49G+ can do way, way more then the other HP calc - of course it will take longer to learn. I personally believe RPN is easier to explain when you can see the stack, and not just remember it.

By the way, my argument still stands. I still think I'd beat you in a race :-)

Joesph

All good things ...

*Message #21 Posted by **Valentin Albillo** on 29 Oct 2003, 10:21 a.m.,*
in response to message #17 by Norm

... must come to and end.

This must be so as well for this very interesting and polite thread (a real example of people having nearly opposite points of view, but nevertheless managing to discuss them without going for each other's throats, a real rarity in forums but not so in this one).

Hi Norm & everyone following this thread.

I've read your long and interesting reply with all due attention and though the thread must finish now, I want to comment a few points I feel you may have misunderstood, probably because of me not explaining myself with total clarity (a typical problem we non-native English speakers frequently must deal with). Let's see:

"Your view that "RPN is obsolete" however is [...] unpopular with the types on this chat board"

I know, I know, but just the same ...

"there are an increasing number of posters here who are thinking like you..... who aren't loyal to RPN but like the latest "cereal box" trinkets from "KINPO"

Not me. My HP collection does not include anything but classic, worthwhile models. No China-made junk (save for an HP-12C that I promptly got rid of), and no RPL machines at all (save an HP-28S, for historical reasons). HP48s and 49s have no place at all next to my 15C's, 41CX's, 71B's, 32S's and 42S's, among others, not forgetting my beloved 24+ year old HP-34C. I wouldn't touch a KINPO model with a ten feet pole.

"HP (and some like Valentin) are enamored with the view that a calculator is now a "COMPUTER IN A CALCULATOR" (the graphing calculator craze). I don't agree."

Neither do I. I have not a single graphing calculator, from any brand name. The fact that many of my SHARPS do have large screens which are pixel-addressable (and thus can show graphics on them) doesn't mean they are 'graphing calculators', at all. If you want some function graphed on the display, you'd better write a program to do it, pixel by pixel. The large screen is nonetheless very useful to enter and edit programs, and for hand calculations and sometimes graphics come handy, such as for my Othello program, with the board always displayed on screen.

"Giving me a cheezy, terribly low-res graph on some 100 x 150 pixel (?) screen on a calculator is (a) useless (b) interferes with me getting my work done"

For the typical, student-oriented graphing calculator, you're probably right. But for the scientific calculator which happens to have a large screen, as mentioned above, it's just the opposite. It greatly facilitates your work, as you can see previous calculations and results still in the display (till they scroll out), and you get to see more program lines at a time, and longer program lines, without scrolling. One of the worst flaws of the otherwise excellent HP-71B was that its very small, 1x22 character display made a chore of entering and editing any programs. A 4x24 display, on the other hand, is extremely convenient. Even the small, 2-line display of the HP42S is a great help over one line displays.

"Let me elaborate..... my chosen engineering skill is analog electronic design [...] I also stand by that there is no reason that a 32Sii wont function 60 years from now [...] I am the EE, I win you lose."

Nope. Though I work as a Senior Systems Engineer right now, I'm also an EE ... and anyway, time will pass by, and we will eventually see who was right. My best advice would be: use your 34C and enjoy it as much as you can, even if that means it will wear out. Keeping it in a safe, avoiding using it to make it last is futile, and in the end it will die by itself and you'll be left with a nonworking machine that you never fully used like it deserved to.

"WELL, even if that was the original root cause of RPN, it's NOT THE REASON FOR IT. EASE OF USE IS THE REASON"

That's the problem, Norm. Just stating your point in capital letters (as if shouting) won't make it right. As I see it, the problem is you seem to never have given any other machines a chance, at all. You just decided at some past date that RPN was it, and there you are. Never questioning it. Never really comparing it against more modern approaches. Never really taking some good non-RPN machine and invest the time to get to know it and see its good points.

That being so, seems to me you're just rooting in what you know, never trying out new things and gaining experience. Me, I am not a TI-junkie or otherwise, sadly ignorant of The-RPN-Revelation. On the contrary, I've been into RPN all my life, bought every classic RPN machine as they were being released, and have written thousands and thousands and more thousands of lines of highly-optimized RPN code, and still do. I have many articles (+programs) published in PPC, Technical Notes, Datafile, a couple books by HP (one for the 34C), etc. etc, so I know RPN pros and cons inside out. But I'll never let myself get blinded or limited by a single point of view, however right it may seem, and I got to know and experience other machines, and of course, tested them against RPN ones.

You know the results. I still like very much RPN, still write RPN programs and articles, and will do so in the near future, but I know (because I've tested it) that RPN can't beat the best algebraic systems neither in ease of use, nor in speed, nor in convenience. It may do for you, but not for me. I can evaluate and reevaluate any cumbersome expression (not "formula", as you seem to understand this term as a symbolic formula) in my SHARP PC-1350, say, long before you've had a chance to even decide on where to begin with.

But don't trust me, do the test yoursef, pitting two persons, one versed in RPN, the other versed in some powerful algebraic model, and give them some complex expression they've never seen before. Provided they're both proficient with their respective models, the non-RPN guy will win hands down. A reevaluation changing some value would be a killer for the RPN guy, as the other fellow would just bring the whole expression to the display with a single keystroke, then place the cursor over the value to change and press ENTER, and there you are, while the RPN fellow would have to reenter all numbers (even the ones not changed) and operators from scratch, as if he were evaluating it for the first time. Even using registers to store parameters wouldn't save the day for him, unless he would resort to try and write a program on the spot, which the non-RPN guy wouldn't need to. Try it !

"You advocate an "algebraic calculator" but this is so wrong it aint funny!! Why? Because you have to start an entire new step..... type in the formula as an abstract!!!!!!!"

You misunderstood something here. Seems to me you're thinking I'm advocating graphing calculators, where you must enter symbolic expressions with some kind of equation editor and such. That's not correct. I completely dislike graphing calculators and symbolic equations editors, never use them and never would. The calculators I advocate are the ones where you can enter:

X=3.0013431 , (X/EXP 1)^X*SQRT(2*PI*X)*(1+1/(12*X)+1/(288*X^2)-139/(51840*X^3))

and press [ENTER] and you'll get the result instantly evaluated on screen (while the expression itself still remains on-screen, above, ready for re-evaluation). No tedium and no burden, absolutely straightforward.

"It's about whether you are going to "BELIEVE" in RPN or not."

For a lot of people, yourself probably included, this is indeed kind of an 'emotional' issue, but not for me. There are issues that do require some faith into the proceedings, but this isn't one of them. This is a matter that can be tested, and rational reasons can be given and discussed. The problem is lots of people *won't discuss it* (lest they might risk losing their 'faith' in RPN, which they dare not), *won't give other machines any chance whatsoever* (after all, not being RPN they can't be any good), and above all, *they won't perform any fair tests, at all* (why testing, when RPN's superiority is so obvious ?). This might be an acceptable attitude for most people, in this issue and in other more important real-life issues, but it's not an acceptable position for me.

"OK, well, there's no flames here, no war here, just talk, and fast typists. And smiley faces :o) [...] and with that final thought to logically win out over your stance, I wish you well and hope the time to trade this stuff was not too burdensome."

I wish the same for you, Norm. I've found this exchange of opinions most interesting, still think I must thank you for your consideration and patience with my 'heretic' :-) points of view. If you post any reply, I'll read it with interest, but I won't add further to this thread. In any case, rest assured that I like RPN a lot, and you'll be hard pressed to find any other person who has devoted so much time (and money) to it and its HP hardware implementations. That's a whole lot more of a chance than most RPN people would give to any non-RPN systems.

Best regards from V.

Valentin, one more thing.....

*Message #22 Posted by **Norm** on 29 Oct 2003, 3:25 p.m.,*
in response to message #21 by Valentin Albillo

You mentioned you prefer HP-42S because of a 2-line display.....

(Valentin wrote: the small, 2-line display of the HP42S is a great help over one line displays.)

I dont even want 2 lines in my display. I've run those, and they are distracting and reduce my productivity. Part of the incredible magic and beauty of making an HP-34C your friend (or, you know 32S, 32Sii) is that only the RESULT is on display and you keep the other stuff in your head. I SEE STUFF in "X" and I know there is stuff in "Y" and "Z" and "T" even though I dont see it, I know its there and that's enough. What if you could have a really big screen to show the entire operating system contents of your HP-49G etc would that make it better? Would it help solve a practical problem? I hold 3 patents and I have work to do and problems to solve. They wont get solved any better, nor faster, if the entire contents of the Communist Manifesto are displayed on a really big screen on my calculator.

BTW I've got plenty of company on this. A fine personality, Mr. Bob Carver (Phase Linear Corp., Carver Corp., Sunfire Corp.) is down the road and he ALWAYS totes an RPN HP calculator with him (not sure model, probably 41C) and that guy is a very busy

problem solver. ....

Valentin, you have carefully described that my calculator WILL NOT function in 60 years from now, and also, that a 32Sii will not function 60 years from now. You have inferred that there is a little timer inside each resistor, and each capacitor, and at 35 years (the number you mentioned) kawhoom a little detonator goes off and each little molecule is vaporized in that resistor, or capacitor, and I'll be $hit out of luck !!

Well, I guess inside each ASIC on the circuit board, what, the glass oxide disappears and the polysilicon gates suddenly touch the drain-source?? At 35 years.

It's a marvelous testimony that plenty of HP calculators from 1980-1990 WILL BE FUNCTIONING 60 or 80 years from now, and NO, I don't have to keep it in a refrigerator in an antique art museum. Just a little respect and technical knowledge is all it needs. THE VERY THOUGHT must make Carly Fiorina absolutely freak out. She wants you to buy a new one every 2-3 years and a potential 60-80 year lifetime of a product just don't meet her personal profit agenda.

(((Do you buy your garden hose at HOME DEPOT or LOWE's ?? I used to. Till I figured out I was being gypped and the dang things rot away to dust within 5 years..... if not blowing a leak outright in the first 2 years. So One day I talk to the hydraulic wizards and ask what kind of hose gets used on production floors, etc., and they say "200 psi Parker push-on, accept no inferior". So I get these 200 psi garden hoses made up from a hydraulics shop and screw them on the side of my house. That was 10 years ago and its obvious they will last 40-60 years FULLY PRESSURIZED (except I drain them in the wintertime). This is the best way to be, dodge corporate America's (Carly Fiorina's) attempts to mine your wallet while plugging the landfill. Only buy good stuff that lasts a long time, IMHO.)))

If you are an EE, then you know that ALUMINUM ELECTROLYTICS are the lousy so & so's that ruin electronic equipment by self destructing. Their little self-destruct timer is set to about 25 years, not the 35 you mentioned.

But you replace those !!

I also stand by that there is no reason that a 32Sii wont function 60 years from now [...] I am the EE, I win you lose."

Valentin wrote: ("in the end it will die by itself and you'll be left with a nonworking machine that you never fully used like it deserved to.") No, no, but you know, I dont use the calculator every single day. That just varies but I'm not just using it in order to have entertainment it gets used when it needs to get used. Sure I admit I will use the 32S for the most casual jobs and "save" the HP-34C for more "special occasions" (like bringing out that vintage finest red wine). I would estimate that if its used for an hour, or two, every week, it is not going to get a wornout keypad, or whatever you feel it is going to succumb to. (Sure if you use it 4 hours a day you will wear out the dome switches)

"WELL, even if that was the original root cause of RPN, it's NOT THE REASON FOR IT. EASE OF USE IS THE REASON"

(Valentin wrote: "That's the problem, Norm. Just stating your point in capital letters (as if shouting) won't make it right.) WELL, once inawhile CAPITAL LETTERS are useful for punctuating the more important parts of email, and..... so are long strings of dots to make pauses

not to mention the occasional line break to knock apart a thought into a few more pieces.

Valentin wrote: As I see it, the problem is you seem to never have given any other machines a chance, at all.

NOT TRUE. I purchased a 48G+ and was horrified with the lack of clear thought on its design, and the lack of a fair introduction to new users. I could point to 20 things in teh supposed "getting started" manual that were highly offensive. So I finally decided that somebody was trying to waste my time, and I thwarted their efforts to mine my wallet by passing it along to another buyer.

(Valentin wrote: You decided at some past date that RPN was it, and there you are. Never questioning it.) Nope, see the above paragraph.

The calculators I advocate are the ones where you can enter:

X=3.0013431 , (X/EXP 1)^X*SQRT(2*PI*X)*(1+1/(12*X)+1/(288*X^2)-139/(51840*X^3))

HEY VALENTIN ONE MORE THING (see I used the all-caps because I'm not sure if you are still reading by now) on your way to the exit door, can you shout one last thing at me.....
tell me the make and model number of the calculator that does what you just said above. Tell me one make and model that most embodies what you are advocating.

I will go so far as to look it up, if its not something I am familiar with, maybe I will buy one. I am receptive to knowing what's the superior unit, if there is such. It has to be superior all-around, like with a good 'getting started' manual, because maybe I'm not some fanatic who hangs out in a computer room so that his buddies teach him how to use it w/o a manual (that's Bill Gates corporate policy) .

I do like what you mention, just typing in with the keyboard, ALTHOUGH, as always, its really the domain of the computer not the calculator. For example, the HP-34C has no meaningful letters like A-Z on it... why? Because its a NUMBER CRUNCHER (not a letter cruncher).

Anyway if somebody did a reasonable job of putting that kind of stuff you like (enter formulas using letters, quickly and easily) into a calculator and it works good, give me the model number and I'll at least look around a little.

After all, if all my HP calculator fails precisely at 35 years of age, and don't make it to 60, I will need some sort of alternative, no matter how miserable it is to use.

Best,

- Norm

Battery technology highly advanced

*Message #23 Posted by **james (UK)** on 30 Oct 2003, 6:08 p.m.,*
in response to message #22 by Norm

Hi Norm - re your comment: "You have inferred that there is a little timer inside each resistor, and each capacitor, and at 35 years (the number you mentioned) kawhoom a little detonator goes off and each little molecule is vaporized in that resistor, or capacitor, and I'll be $hit out of luck !!" - this seems to be the case with auto battery technology which seems to have advanced to the stage where the life can be designed extremely accurately - at least every car battery I get invariably dies one month out of guarantee ;-)

HEY VALENTIN

*Message #24 Posted by **Norm** on 31 Oct 2003, 4:59 a.m.,*
in response to message #22 by Norm

there was a question for you near the end of the prior post.

And the answer is ?

Re: HEY VALENTIN

*Message #25 Posted by **Valentin Albillo** on 31 Oct 2003, 7:46 a.m.,*
in response to message #24 by Norm

Hi, Norm:

Don't think for a moment I forgot your question, quite on the contrary. I've read your interesting reply a few hours ago (very different time zones, you know), and thought it was very nice on your part offering to try some non-RPN machine, so I'm thinking most carefully which machine would most likely suit your tastes best. To that effect, I'm preparing a full response, images and all, giving you some choice and several useful comments to help you decide.

I can either post it here or else send it directly to your e-mail address (analogee ...) assuming it's valid. In any case, expect a reply from me within 24 hours (now at the office, too busy, all of my materials and pics are at home).

Best regards from V.

Re: HEY VALENTIN

*Message #26 Posted by **james(UK)** on 31 Oct 2003, 8:49 a.m.,*
in response to message #25 by Valentin Albillo

Hi Valentin If Norm has no objections can you post your thoughts here please, as I for one would be interested in reading them.

James

Re: HEY VALENTIN

*Message #27 Posted by **Ron Ross** on 31 Oct 2003, 9:10 a.m.,*
in response to message #26 by james(UK)

Remember, you should also make sure your recommendation is easily available.

An Hp27s is very nice, non-RPN, but also, not available either.

Same for your older Sharps.

I'm also curious as to your suggestion (as I might just have to buy and determine for myself as well).

To James and Ron (and Norm)

*Message #28 Posted by **Valentin Albillo** on 31 Oct 2003, 9:24 a.m.,*
in response to message #26 by james(UK)

Hi, James & Ron (and Norm):

James posted:

"Hi Valentin If Norm has no objections can you post your thoughts here please, as I for one would be interested in reading them."

Certainly. Glad to see you're interested in my comments, let's hope they're up to your expectations ! :-)

Ron posted:

"Remember, you should also make sure your recommendation is easily available [...] I'm also curious as to your suggestion (as I might just have to buy and determine for myself as well)."

Some models are more easily available than others, of course, but rest assured that the ones I have in mind are both quite easily available *and* quite affordable, nothing like the outrageous prices most desirable HP models are selling for these days

As I said to James above, I'm very glad to see that there are some good HP users and collectors that aren't afraid to try and judge for themselves whether other machines are any good or not.

Frankly, I don't think they ought to be *mutually exclusive*, i.e.: either you love HP machines *or* you love other brands. I think you can love both at the same time, no problem, provided them all are extremely worthwhile achievements in the vintage handheld computing world.

Best regards from V.

Valentin..... No need for an HP,

Message #29 Posted by ***Norm*** *on 31 Oct 2003, 6:59 p.m.,*
in response to message #28 by Valentin Albillo

Valentin, no need for an HP.

The request is, recommend the make/model that most eloquently does things BETTER than an RPN HP Classic. That may well NOT be an HP .....

And then maybe I will try it (maybe... gotta shop around).

Say that Carly Fiorina declares war on HP-34C and HP-32S and HP-32Sii . Say that Carly is like the king when they had to kill all the babies because one was said to be the chosen one. (One of 'em got floated away on the river however and got away...)

So Carly bids all the 34C's off of eBay, and smashes each one. No more RPN!! No more 41C !! Not even used ones!! If so, what would I buy? What is being churned out of the factory RIGHT NOW so that I would go buy

something?

That is why the question.... to see what is the runner-up to what I prefer. If its better, like you say, that would be Ok too.

- Norm

Re: "Ans" function goes a long way toward (one of) RPN's core conveniences

*Message #30 Posted by **Paul Brogger** on 31 Oct 2003, 9:16 a.m.,*
in response to message #25 by Valentin Albillo

Interesting subject. I noticed when I got the TI-83+ that it's "Ans" key/function seems to bring it closer to RPN.

With "Ans" available, I seem less anxious about (and less "shackled" to) the result of the previous calculation. The previous result isn't necessarily waiting to pounce on the next part of a formula that I enter. I can pretty much start up a new sub-calculation and stick the "Ans" in wherever I want, without explicitly saving it to and recalling it from memory.

In this respect (and in reference to an earlier post about using RPN in working through complex formulae), while RPN may *impose* some rigor in methodically decomposing and working through a complex expression, an Algebraic with an "Ans" key (kind of like a two-level stack or implicit memory register) seems to better support that kind of approach than does an Algebraic without such a function.

(Does anyone happen to have noticed when "Ans" first appeared?)

Re: "Ans" function goes a long way toward (one of) RPN's core conveniences

*Message #31 Posted by **Valentin Albillo** on 31 Oct 2003, 9:37 a.m.,*
in response to message #30 by Paul Brogger

Hi Paul,

Re "Ans", I'm not familiar with that particular calculator you mention having the "Ans" key, so I'm not sure if I get rigth what "Ans" actually does.

Assuming "Ans" just recalls the last result computed in any desired place of a new expression you're calculating, this is not a new feature at all. HP already did it in the HP-71B, where RES recalls the last computed value anywhere, i.e:

```
X = 2*3
Y = 5*RES + RES^2
```

would assign 6 to X and 5*6+6^2 = 66 to Y. There's a similar approach when in CALC mode. This way you don't need to explicitly assign the last result to any variable at all, plus RES is faster than using a named variable, as it is a fixed location in memory and there's no need to search for it. There's also the fact that if you've got the Math ROM, RES can store the last complex result, both real and imaginary parts.

SHARP machines do likewise. To re-use the last computed value in a subsequent new expression, you simply press [CURSOR DOWN] at any place you want the value inserted, like this:

```
2 / 3  [ENTER]  ->  0.666666666667


5 *   [press cursor down, see 5 * 0.66666666667
       in the display]


+ 4 / [press cursor down, see 5 * 0.66666666667 +
       4/0.66666666667 in the display]


[ENTER]
```

If this is more or less what "Ans" does, both HP and SHARP (and probably other brands) already did it 15 years ago.

Best regards from V.

Re: "Ans" function

*Message #32 Posted by **Paul Brogger** on 31 Oct 2003, 9:50 a.m.,*
in response to message #31 by Valentin Albillo

Right -- that's exactly what it does.

I wasn't claiming it was "new" or unique to my (only) new TI calculator. It merely came as something of a minor revelation to me just how useful could be that feature in an Algebraic interface.

There's also an "Ans" function on the HP-49G+ -- I believe in Algebraic mode, it simply returns the most recent entry on the stack. (And the stack is, in Algebraic mode, simply hidden from view -- if I've got it right.)

"RES" on HP-71B (thanks, Valentin!)

*Message #33 Posted by **Karl Schneider** on 1 Nov 2003, 1:20 a.m.,*
in response to message #31 by Valentin Albillo

Valentin --

Good tip! (I was, in fact, wondering about that; it seems that "RES" is like "ans" on Matlab.) I just got myself an HP-71B on eBay for about $100. Complete with manuals, fully functional and in near-perfect condition, but unfortunately no extras (e.g., Math ROM, RAM).

I've only scanned through the manual, but have some of your posts about the 71B.

Re: "RES" on HP-71B (thanks, Valentin!)

*Message #34 Posted by **Valentin Albillo** on 2 Nov 2003, 12:08 a.m.,*
in response to message #33 by Karl Schneider

Karl posted:

"Good tip! (I was, in fact, wondering about that; it seems that "RES" is like "ans" on Matlab.)"

A curious fact about RES: if you've got the Math ROM and perform some computation which results in a complex number, RES will store the value of this complex result, both real and imaginary parts. What would happen if you would then turn off the machine, unplug the Math ROM, then turn it on again and execute RES ? I know the answer ... :-)

"I just got myself an HP-71B on eBay for about $100. Complete with manuals, fully functional and in near-perfect condition, but unfortunately no extras (e.g., Math ROM, RAM)."

Congratulations on your new acquisition, but if you haven't got the Math ROM, then you *don't* have a full HP-71B, only *half* an HP-71B. And I'm not kidding. You can't claim you've got an HP-71B till you get the Math ROM, as it was an integral part of the machine which was intended to have *three* internal ROMs: ROM 0,1, and 2. Because of budget constraints and marketing pressures, ROM 2 was taken out forcibly, leaving the machine seriously handicapped in its projected math abilities. Needless to say, the Math ROM *is* the wayward ROM 2. They wouldn't remove all code, so some is still left in the bare bones HP-71B. For instance, try to enter this line as part of a program:

```
10 X = (2,3) * (4,5) @ Y = SIN((1,1))
```

and notice that you actually *can*, i.e.: it won't complain at all, no syntax error, because the bare bones machine's operating system still recognizes complex numbers. But sadly, if you then try to execute that program line, you'll get an "XFN NOT FOUND" error, as the code in ROM 2 which was in charge of all complex functions and arithmetic was unmercifully removed. So, you know what you've got to do, this will give new meaning to your life from now on: go an get a Math ROM, no excuses. I've got three HP-71Bs, and all of them have their very own Math ROM plugged in, as it should.

"I've only scanned through the manual, but have some of your posts about the 71B."

More seriously, I'm glad if some past posts of mine are any use to you, and if I can help further, don't hesitate to ask.

Best regards from V.

Re: "RES" on HP-71B (thanks, Valentin!)

*Message #35 Posted by **Karl Schneider** on 3 Nov 2003, 10:21 p.m.,*
in response to message #34 by Valentin Albillo

Valentin --

Aha! Thanks for the history of the Math ROM. I was aware that the Math ROM added considerable functionality, but was unaware that it was intended as "standard equipment". It's a shame that something that cost $525 in 1984 (I'd believed that the price was $750) was deliberately crippled by such "de-contenting".

I'l see what I can do about procuring a Math ROM, but eBay might not be the best source. I remember a few months ago that one seller offered two non-functional 71B's, but can't remember if either had a Math ROM. Getting one bundled with a broken 71B might be an "economical" option, if no one is selling them "a la carte".

Re: "RES" on HP-71B (thanks, Valentin!)

*Message #36 Posted by **Valentin Albillo** on 4 Nov 2003, 6:24 a.m.,*
in response to message #35 by Karl Schneider

Karl postedd:

"I was aware that the Math ROM added considerable functionality, but was unaware that it was intended as "standard equipment".

Apart from the "10 A=(2,3)+(4,5)" example I gave you in my former post, there's even better confirmation by simply reading through the "HP-71B Internal Design Specifications (IDS) Volume II", which contains the full listing of the assembler source code for the whole 64 Kbytes Operating System (i.e: internal ROMs 0 and 1). There you'll find a large number of calls and polls to Math ROM routines, for it to handle all kinds of functionality, from complex numbers to arrays to IMAGE statements formatting, etc, etc. Of course, if the ROM is not present, they simply fail gracefully and ROM 0 or 1 takes over and continues, either absorbing the 'error' without the user ever noticing it, or else reporting an XFN NOT FOUND error, as required. At the time where the Math ROM was still an internal ROM (ROM 2), those calls and polls would have always succeeded, of course.

" It's a shame that something that cost $525 in 1984 (I'd believed that the price was $750) was deliberately crippled by such "de-contenting".

If only it were the Math ROM 'crippling' ... Have a look at this very interesting post to read, in the very words of one of the most prominent members of the HP-71B Project Team, what other 'deliberate misfortunes' fell upon the poor 71B:

HP & AES in the past

"I'l see what I can do about procuring a Math ROM, but eBay might not be the best source."

Short of finding one at a flea market, your best chances are eBay and the Classified Ads section of this very MoHP. If you decide to try eBay, your best chance is finding some HP-71B, functioning or not, cosmetically challenged or not, which does *include* a Math ROM plugged-in as part of the auction. This usually results in a lower higher bid.

Whatever the case, do get one, the sooner the better.

Good luck and best regards from V.

Complex Numbers on HP-71B (Valentin, please help!)

*Message #37 Posted by **Jeff** on 5 Nov 2003, 12:18 p.m.,*
in response to message #34 by Valentin Albillo

Valentin,
Although it was not directed to me, I would like to take you up on your offer of help in using the 71B. Please excuse what is probably a ridiculously simple question, akin to the recurring cries for help in switching the dots and commas on the voyagers. I have a 71B with the Math ROM. I have access to the 71B manual on my set of the museum CDs, but could not find any help there. Unfortunately, I have not upgraded my 5 CD set to the 7 CD version yet, so I can't look at the Math ROM manual which is on CD 6. This probably has all the answers and I will upgrade my museum CDs soon. However, any tips or pointers you could offer before I do this would be appreciated. So, on to my inquiry.
Upon reading your little challenge regarding what would happen to a complex RES value if you removed the math module, I figured I would try it and see for myself. However, I have so far been unable to get it to provide a complex answer. It seemed to me that SQRT(-5), or perhaps ASIN(1.5) or similar should do it. Whenever I try these or similar, the 71B beeps at me and the display reads "ERR:SQR(neg)" or "ERR:Invalig Arg", depending on what I tried to do. Is there a trick to getting it to give complex answers when needed, like setting a flag or choosing complex mode as on the 15C or 42S? I also tried entering the program line you presented. The 71B does indeed accept the program line. Without the Math ROM installed, when I press RUN, I get "ERR L10:XFN Not Found". With the Math ROM, I get "ERR L10: Data Type".

Re: Complex Numbers on HP-71B (Valentin, please help!)

*Message #38 Posted by **Valentin Albillo** on 6 Nov 2003, 5:06 a.m.,*
in response to message #37 by Jeff

Jeff wrote:

"Although it was not directed to me, I would like to take you up on your offer of help in using the 71B."

Of course, you're welcome .

"However, I have so far been unable to get it to provide a complex answer. It seemed to me that SQRT(-5), or perhaps ASIN(1.5) or similar should do it [...] Is there a trick to getting it to give complex answers when needed, like setting a flag or choosing complex mode as on the 15C or 42S?"

No, there's no 'complex' mode or flag setting to select either complex answers or an error. If you do nothing special, you'll get an error when trying SQRT(-5), etc. If you'd rather have complex answers,

then you'll need to use complex variables to store/manipulate them, and when applied to a complex variable, SQRT [etc,] does return complex answers. For instance:

```
  10 REM *** this will give an error ***
  20 REAL X,Y
  30 X=-5
  40 Y=SQRT(X)


vs.


  10 REM *** this will give a complex answer ***
  20 COMPLEX X,Y
  30 X=-5
  40 Y=SQRT(X)
```

This will also work right from the keyboard (or in CALC mode) if you have executed COMPLEX X,Y or COMPLEX SHORT X,Y before attempting the SQRT. Besides, if you want to get the square root of -5 as a complex answer without using any variables at all, you can do it from the command line or CALC mode like this:

```
  SQRT((-5,0))
```

This will specify -5 as the "complex" value (-5,0) and thus SQRT will happily deliver a complex result. Just to test how easy it all is, try and get the result of evaluating i^i :-)

" I also tried entering the program line you presented. The 71B does indeed accept the program line. Without the Math ROM installed, when I press RUN, I get "ERR L10:XFN Not Found". With the Math ROM, I get "ERR L10: Data Type".

The message "ERR L10:XFN Not Found" is as it should, as the mainframe will poll the Math ROM to handle the complex calculation and it's not there. The "ERR L10: Data Type" results from X not having been 'declared', which the 71B interprets as X being REAL, by default. Of course, a REAL variable can't store a complex result, and that's why the error shows up.

To get it to correctly run (or execute from the command line or CALC mode) you need to include a line such as "5 COMPLEX X" or "5 COMPLEX SHORT X", or else execute "COMPLEX X" right from the keyboard. Having declared X to be a complex variable, the assignment should work.

Any further doubts or questions, just ask ! :-)

Best regards from V.

Edited: 6 Nov 2003, 9:36 a.m.

Thanks a lot, Valentin! (NT)

*Message #39 Posted by **Jeff** on 6 Nov 2003, 12:15 p.m.,*
in response to message #38 by Valentin Albillo

Re: "Ans" function goes a long way toward (one of) RPN's core conveniences

*Message #40 Posted by **Mark Ordal** on 31 Oct 2003, 10:23 a.m.,*
in response to message #30 by Paul Brogger

As to when "Ans" was introduced on Texas Instruments calculators: I don't recall that feature being present on my SR-50, circa January 1975. However, it is present on my TI-85 and I believe they were introduced in 1993.

--Mark

Repeated evaluation of an algebraic expression

*Message #41 Posted by **Tom Sherman** on 31 Oct 2003, 8:33 p.m.,*
in response to message #22 by Norm

Functions, whether single or multi-variable, can be entered algebraically and evaluated repeatedly in any of the calculators that have an algebraic solver. This includes the 27S, 19B or 19BII, 28C or 28S, 32SII, and most of the graphing calculators from HP and TI. The algebraic solver is particularly nice on the 27S and 19B or 19BII. That on the 32SII is not quite so attractively presented. The algebraic solver is also part of the HPCalc software packaged with the older Windows Omnibooks (300 to 800 series) and in DOS version with the HP-200LX pocket computer.

The graphing calculators are well set up for the repeated evaluation of functions of a single variable, for that is what they do in making graphs. In addition to presenting the results in graphical form, they will present them as tables, rather like spreadsheets, incremented in whatever way the user chooses. Amazing to see!

The HP 38G and 39G calculators are available on eBay for absurdly low prices, $15-25. They are much better calculators in many ways than the 32SII, which goes for prices nearly ten times as high. But they are algebraic, and they are graphical, and folks are entitled not to like those characteristics if they wish.

I became an HP enthusiast (and HP snob!) in 1975, when I bought an HP-25, my first personal computer. For twenty years I pitied my poor students who carried TI calculators around. But after I retired from college teaching, I woke up to the fact that the TI-83, TI-86, and TI-89 are supremely good calculators. The fact that American high schools are filled with students playing games on the TI-83 does not detract from its power or ease of use for those who really want to do something with it. The TI-83 also has a very fine manual(unfortunately now on CD, instead of in book form)which is fun to learn from, and which was probably part of the reason that it won out over the HP 38G and 39G, which have manuals almost as terrible as that for the 49G. The main limitation of the TI-83, so far as I am concerned, is that its BASIC language does not accept indexed variables or variables containing more than a single letter. The TI-89 is not so limited, but its manual is very inadequate in explaining the syntax of its BASIC, which is somewhat different from that of the 83.

My two cents, too many times over.

Tom

Re: Repeated evaluation of an algebraic expression

*Message #42 Posted by **Namir Shammas** on 8 Nov 2003, 10:40 a.m.,*
in response to message #41 by Tom Sherman

Tom,

I agree with you. The TI-89, TI-92 PLus, and TI-200 offer new power. Let me explain with an example. One area of math fun for me is to solve the root of equations (which I also use to test new machines and programming languages). With the new TI (and I guess the new HPs too) you CAN ask the calculator to obtain the derivative(s) of the function based on the equation you are solving and then use algorithms like Newton in a more literal way since now you CAN do this:

x_new = x - f(x) / f'(x)

With NOOOOOOOO approximations needed to calculate f'(x)!!

Now that's what I call new power ... sorry HP-65, 67, and 41CX ... you are not cut out to this kind of math magic!

Re: Repeated evaluation of an algebraic expression

*Message #43 Posted by **Tom Sherman** on 8 Nov 2003, 6:44 p.m.,*
in response to message #42 by Namir Shammas

Namir,

Good to hear from you. I have enjoyed reading your posts, and meeting in this way the person who wrote all those beautiful programs listed in the Users' Library catalog for the HP-41. I only ever wrote one program for the 41 Users' Library -- one to calculate automatically the local altitude and azimuth of the navigational stars, sun, moon, and planets, using the Navigation Pac and Time Module. I still use it to find out whether that bright object in the night sky is Jupiter, Saturn, or Mars. It was interesting to learn that you wrote some of your programs in hotel rooms while you were traveling!

Best regards,

Tom

Re: Hi again, Norm [LONG]

*Message #44 Posted by **Les Bell [Sydney]** on 28 Oct 2003, 5:18 p.m.,*
in response to message #16 by Valentin Albillo

Valentin Albillo wrote:

> Quote:
>
> All very neat, tidy, elegant, and above all, economically feasible, money-saving, space-saving. BUT (and a big BUT that HP has failed to sell to the masses) the user would be forced to DO the parsing from algebraic to stack notation *himself*, and would need to adopt a new paradigm.

This is the only point I take issue with, Valentin, and it hinges on the distinction between the algebraic notation for writing expressions and the use of RPN in evaluating them. The parsing from algebraic is *exactly* what anyone has to do when performing a calculation. Otherwise, why do kids have to be taught the rules of algebraic precendence?

It strikes me that algebraic notation is great for writing and storing equations/assignments, including for use in programming languages like BASIC et al. But it's not a good mechanism for performing 'back-of-an-envelope' calculations, which is where RPN excels. This is why algebraic notation is a good fit for mathematical teaching tools like the HP-48, etc. but not so good for working engineers who need to grab a convenient device to see whether some numbers 'make sense'.

Best,

--- Les [http://www.lesbell.com.au]

RPN, Slide Rules & Good Medicine

*Message #45 Posted by **Paul Brogger** on 28 Oct 2003, 5:34 p.m.,*
in response to message #16 by Valentin Albillo

When last the subject of RPN's obsolescense came up (and that was not so long ago), it was in the context of the Mach number formula.

I've gotta say, I tried it both with my TI-83+ and with my HP-32s. It was difficult with either. On the TI, I got some of the same "syntax errors" that others did. That doesn't make me stupid or incapable of pushing the right paren key enough times (as was alleged in the heat of the battle) -- it just indicates how complex the formula is. I also had trouble getting it right with RPN -- and it was especially difficult with either method when the formula wasn't available in "textbook format".

Now, before I make my point, I'd like to recall the days when I put aside my wonderful Post "Versalog" slide rule in favor of an HP-21. Scientific calculators were just gaining wide acceptance, and not all were pleased with the prospect. The very next year, the professors of the natural sciences program that I'd just completed issued an edit that no calculators were allowed -- that slide rules were mandatory.

Then, impetuous youth that I was, I dismissed those Luddite instructors as backward know-nothings. Now, I can appreciate what they were trying to do: to force students to actually understand what they were doing; to appreciate orders of magnitude and logarithms; and to build the habit of estimating a plausible result in advance of actually doing any computation.

Recently, it seemed to me as I tried both ways of working through the Mach number formula, that the AOS (or whatever) approach was rather more in line with a new-fangled "just punch in the values and trust the result" way of doing things, and the RPN approach seemed to force a certain rigor in deconstructing the formula, taking it a step at a time, and monitoring the reasonableness of the interim results obtained.

I'm not an educator, but I would support an argument that RPN is preferable to Algebraic/formulaic operation in early higher-maths learning situations (i.e., high school) -- analogous to (though not exactly the same as) the earlier contention that slide rules were preferable to scientific calculators.

And no, I don't think anyone is going to be "crippled" by learning either way, just as I'd not have been disabled if I'd been forced to put down my HP-21 for a year or so . . .

Re: RPN, Slide Rules & Good Medicine

*Message #46 Posted by **Ed Look** on 28 Oct 2003, 11:08 p.m.,*
in response to message #45 by Paul Brogger

Paul, I'd like to add that RPN is good more than just for high school teaching/learning; whenever you need, as someone just said in this thread, to do a quick calculation of something involving more than just arithmetic, a RPN calculator will do the job the best, in my opinion.