

AssistCalc™

For the Newton®

Version 3.1

User Manual

Preface

Even though some people never look at documentation you should read the section on speeding up the Intelligent Assist. This could save you 30 seconds and might make IA worth using. If you don't read all the documentation make sure you read the Legal Stuff section.

Thank you all for taking the time to look at my product.

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About

I wrote the first version AssistCalc because many people expect the functionality of AssistCalc to be built into the Newton. AssistCalc allows the user to write out (not tap, tap, tap) your expression into the Notepad, tap Assist and AssistCalc will calculate an answer for you.

Version 2 came about because using Intelligent Assist was just too slow. So, I created an expression field for you to enter your expression into and a formula popup with many of the NewtonScript math functions in it.

Now version 3.0 the first *programmable* Newton calculator is here. I split up the formula popup in to trig() and misc(), and I created a third menu called **my()** that is user configurable. You can save over 20 formulas!

Installation

AssistCalc is shipped as a Newton package, which is a Newton program file. To install the AssistCalc package onto your Newton you will need either the Newton Connection Kit, the Newton Package Downloader, or the equivalent. Refer to the instructions that came with one of these applications to determine how you need to proceed.

Opening AssistCalc on the Newton

Once you have installed AssistCalc onto your Newton, simply tap the Extras button, then tap the icon labeled AssistCalc.

Registration

I'm using a non obtrusive registration procedure unlike my other programs which open a registration reminder screen. Once you receive the registration number you need to enter it on the field that the answer is displayed in (the field just below the "The Answer Is" button). Once it is entered correctly, you then tap the "\$" button and the title will display "Thank you" instead of the "Shareware \$10.00"

To register:

Send:

- Your 'name field' as it appears in the extras->prefs->personal->name field,
- \$10.00,
- Your email address, and
- The name of the product which you are registering.

To:

Hardy Macia
P.O. Box 8276
Essex, VT 05451

I will accept the registration fee in cash, check, or money order.

If you live outside the US then I will accept foreign currency that is equivalent to \$10 US dollars or I will accept a foreign check for the equivalent of \$35 US dollars. The additional \$25 is to cover my bank's processing fee.

Compuserve members have can register online GO: SWREG and look for ID:3156.

If you can send NewtonMail then sending your name card to "HardyMacia" would also be appreciated because it will save me the hassle of writing/typing in all of your information. If you have already registered another of my products you do not need to send your card again.

Expression Field

This is where you enter the expression. You can either tap the expression in with the keypad or you can write it. The field is setup to recognize math input. This means it will recognize numbers and *,-,+,,/,) and).

Some example expressions are:

$$(\log(12.4)-\log(5.6))/(12.0 - 2.0)$$

$$2+2$$

$$4*3$$

$$\sin(30 * 3.14 / 180)$$

Answer button and field

After you enter the expression in the expression field you tap the “The Answer Is” button. The answer will be displayed in the field below this button. You can then select the answer and copy it to where you need to use it next.

The following text might also appear in the answer is field:

“Did not compute” - you might see this if the expression you entered can not be interpreted.

- check for misspelled formulas,

- check for 2 numbers with out an operator in between them. For example “4 + 5 5 + 2” - you will need to scrub out the space between the 5’s or you will need to insert an operator, or

- check for decimals that do not start with 0. You will need to enter “.2” as “0.2”

“Not A Number” - square root of negative numbers will generate this answer.

“positive infinity” or “negative infinity” - for instances of +/- ∞

“Division by zero” - you divided by zero.

Trig() popup list

acos(x)

asin(x)

atan(x)

atan2(x,)

cos(x)

cosh(x)
sin(x)
sinh(x)
tan(x)
tanh(x)
hypot(x,y)
quadratic Formula(a,b,c)

* the sin(),cos(),tan() ... functions want parameters in radians. To convert degrees to radians multiply the degrees by pi/180.

Misc() popup list

exp(x)
log(x)
log10(x)
pow(x,y)
sqrt(x)
gamma(x)
lgamma(x)
max(a,b)
min(a,b)
ceiling(x)
floor(x)
annuity(rate, periods)
compound(rate,period)
 π { pi}

My() popup list

This is the user modifiable list

mpg - has variables for miles and for gallons that you can enter and it will calculate m.p.g.

2 variable repeating equations - someone had asked to do this and I have left it in here as an example.

Save Button

The save button will save the expression that is currently in the expression field to the my() popup list, and it will name it to what you have entered in the answer field.

Steps to saving a new formula:

1. Write formula in the expression field.
2. Write name of formula in the answer field.
3. Tap the save button.

Remove Button

Tapping the remove button will popup the list of saved formulas. Just pick the formula you wish to delete from the list.

Intelligent Assist

AssistCalc can use the Intelligent Assistant (Assist button). If you are in the notepad you can write out your expression with a valid synonym, select the expression and tap Assist.

Valid synonyms for AssistCalc are:

calc
compute
=
equal

Some examples are for use with the Assist button:

= 2 + 2
2+2 =
calc 3/6
sin(45) equal
compute max(4+3,4*2)

* Please note, that for the Newton Intelligent Assistant to interpret the equation you MUST have a SPACE between the '=' and the equation.

** If you have a lot of spaces in your expression Intelligent Assist can take over a minute for

long expressions. To **speed up evaluation** of the expression using Assist button try:

- Remove all spaces except the one space between expression and the synonym. With only the one space Intelligent Assist will only take 3 seconds to interpret your expression.

- for small expressions with just +,-,*,/ add spaces between all operators and numbers.

- copy and paste the expression into AssistCalc's expression field then tap "The Answer Is".

Examples

Some examples are for use within AssistCalc package:

$$(\log(12.4)-\log(5.6))/(12.0 - 2.0)$$

$$2+2$$

$$4*3$$

$$\sin(30 * 3.14 / 180) \quad /* 3.14/180 \text{ is needed to convert } 30^\circ \text{ into radians } */$$

Complex formula building:

Because you can use Newton script you can do the following:

$$x := 1;$$

$$y := 2;$$

$$(x-y)/(x+y)$$

This can be usefull if you have an expression that you want to plug multiple values into to find a bunch of answers. You only need to change 'x' in one place and then recalculate.

If you have problems creating a formula contact me and I'll help you.

Other Notes

Some users have found that they can execute other Newton internal functions. For example reboot(). If you do this you do so at your own risk. Some of these functions can really screw up your Newton. Please only use the documented functions.

Known Problems

The only 2 known problems.

The first is the lack of documentation which this manual is trying to correct. I will release another version with the popup trig() and misc() functions documented.

The second is the selecting items out of the popups when a keyboard is opened will result in vertical bars being drawn and then the expression will replace the vertical bars. I do have a work around for this, but it is slow. When I get time to work on another work around I will impletment that.

Version History

3.1 - 8/9/94 -

- fixed error when user tried writing in expression field
- save expression in prefs

3.0 - 7/31/94 -

- Seperated popup menus into 2 groups and added 3rd popup called my().
- My() is an editable popup so you can store your formulas
- Numeric keypad is opened up and positions for you

2.2 - 5/17/94 - (nothing major, but I felt like releasing an update)

- Added keyboard button in the status bar
- Items selected out of the formula popup it will be inserted into the last cursor position.
- Changed a little bit of how things were being displayed.
- Cieling is now spelled Ceiling.

2.01 - 12/19/93 - Added a popup template. Handles +/- infinity and non numbers conditions. $\sqrt{-1}$ is 'i'. AssistCalc will give you an answer of 'Not A Number'. The AssistCalc window is now dragable <- to support rumored slates.

2.0 - 12/09/93 - Added an expression field to the AssistCalc appliction to bypass the Intelligent Assistant thereby, speeding up processing of expression. This expression field has a custom dictionary associated with it consisting of the above defined functions.

1.01 - 12/05/93 - Answer window is no longer moveable. I decided that being able to copy the answer was more important than being able to see behind the window.

1.0 - 12/04/93 - First release