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Getting Started

Judy's TenKey™ provides an efficient and easy way to perform mathematical calculations in the Microsoft Windows environment. We suggest familiarizing yourself with the program by reviewing the following help sections:

Topic	Description
<u>Installation</u>	Specifies steps for installing Judy's TenKey.
<u>Benefits</u>	Summarizes the major advantages of Judy's TenKey over the base Microsoft Windows calculator.
<u>Display Components</u>	Describes the basic display elements.
<u>Configuring Your TenKey</u>	Helps you set up Judy's TenKey to best suit your individual needs.
<u>Example Operations</u>	Outlines the basic approach to performing calculations and provides several examples.
<u>Registration</u>	How to register your copy of Judy's TenKey in order to receive a free copy of Judy's Countdown.

Benefits Of Judy's TenKey

Judy's TenKey™ makes your calculations easier and more reliable. If you're still using an old-fashioned desktop calculator, you'll love the integration Judy's TenKey gives you with your other Windows applications. If you use the default Windows calculator, you'll find that Judy's TenKey gives you many additional benefits:

History Tape:

Records your calculations in a scrolling list which you can save, print, and resize (a *real* help in keeping track of your calculations). You can also modify and insert new tape entries, causing the tape to recalculate, or reuse previous entries in new calculations (saving typing and reducing errors).

Selectable Syntax:

Judy's TenKey can process numbers like a normal calculator, a scientific calculator (RPN), or an adding machine. If you are familiar with one and not another, you know how difficult and frustrating it can be to try to switch. Judy's TenKey can behave quite flexibly . . . name your preference.

Customizable Display:

Allows you to decide how you want your TenKey to look (selecting from tape, memory, statistics, functions, trigonometry, finance, and number pad options), enabling you to optimize screen usage. Any TenKey function can always be activated via the keyboard regardless of the current display configuration.

Financial Calculations:

Judy's TenKey can calculate monthly payments for most loans (e.g., cars, houses, etc.), expected investment growth, necessary retirement savings, inflation adjustment, and more. Judy's TenKey supplies several intuitive dialogs to make these financial calculations easy, and records each calculation on the tape so that you can later review different scenarios.

Statistics:

The scrolling tape provides a natural interface for statistical calculations, including average value, sum, or even standard deviation. Simply select the desired lines, then press the appropriate statistics button.

Intelligent Cut & Paste:

You can copy tape entries to other applications, including Microsoft Word, Excel, and Quicken. You can also paste input from these applications into Judy's TenKey, interpreting them as a sequence of commands if desired. If extraneous

text and special formatting are mixed in with your numbers, Judy's TenKey uses heuristic reasoning to extract and interpret appropriate information.

Decimal Selection:

You can set Judy's TenKey to display the number of decimal positions you prefer, ranging from 0 to "as needed". In fact, you can configure Judy's TenKey to automatically insert the decimal point for you (a real favorite with professional accountants). If you frequently deal with money, you may want to set the decimals to 2 (for cents) or 0 (for dollars).

Extra Touches:

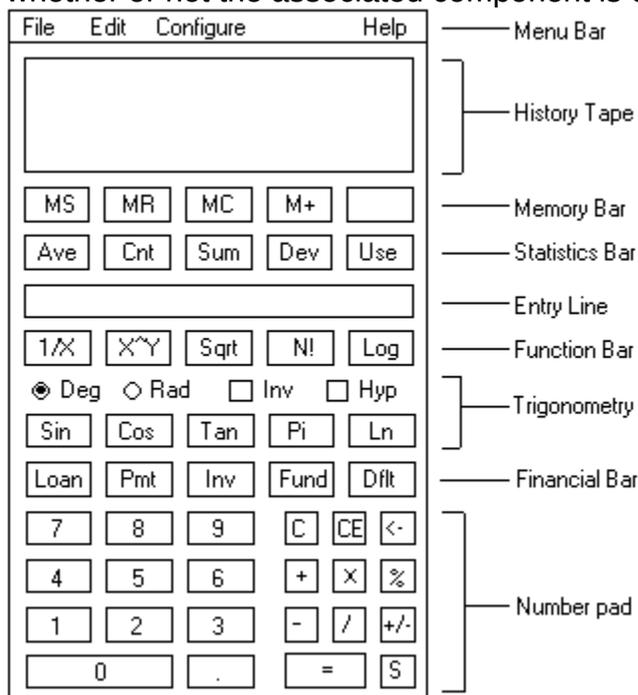
Judy's TenKey remembers your favorite screen position and displays itself there every time. It also uses thousands separators for moderately large numbers (commas in the United States; "1,000,000" as opposed to "1000000"), displays negative numbers in red, and allows you to use the backspace key to edit results for further calculation. You can set Judy's TenKey to stay on top of all other windows.

Better Performance:

Judy's TenKey enables you to work faster and more reliably. Once you can see (and reuse!) the numbers in your calculations, you will never return to the default Windows calculator. Judy's TenKey also uses a proprietary algorithm to ensure superior results (try subtracting "750.35 - 750.30" using the Microsoft calculator: it does not work!). Finally, Judy's TenKey can also express both larger and more precise numbers, and provides an unlimited stack when in scientific mode.

Display Components

Judy's TenKey provides 9 major display components, as illustrated below. You can choose whether or not to include many of these components in your TenKey display by using the "Configure" menu option; all commands are accessible via the keyboard whether or not the associated component is currently displayed.



Component	Description
<u>Menu Bar</u>	A command interface that enables you to configure the appearance and the operation of Judy's TenKey, to save and print tape files, and to access this help documentation.
<u>History Tape</u>	A scrolling list that records the numbers you type and the results of your calculations. You can update your calculations by editing the tape directly; it holds your last 300 entries, and can be set to display up to 25 lines at a time. When necessary, the history list displays a scroll bar on the right; use the scroll bar to review your work by clicking on the arrow or dragging the thumb button.
<u>Memory Bar</u>	A row of buttons that controls memory operations. If anything is currently in the memory, an "M" will appear in the memory status box at the right-hand side.
<u>Statistics Bar</u>	A row of buttons that performs calculations using selected tape entries, such as average and standard deviation.

Entry Line	Displays numbers as you type them, intermediate subtotals, and final results of your calculations. This line is the main interface to Judy's TenKey, and cannot be disabled.
<u>Trigonometry Bar</u>	Two rows of controls that support trigonometric functions.
<u>Function Bar</u>	A row of buttons that provides advanced mathematical functions, such as factorial and base 10 logarithm
<u>Finance Bar</u>	A row of buttons that bring up specialized dialogs to answer common financial questions, such as loan payment sizes and retirement fund requirements.
<u>Number Pad</u>	Several rows of buttons that support number entry and basic mathematical operations.

Tasks

This section explains how you can use Judy's TenKey to accomplish common tasks:

Topic	Description
<u>Configuring Your TenKey</u>	Helps you set up Judy's TenKey to best suit your individual needs.
<u>Standard Calculations</u>	How to perform common operations like addition, subtraction, multiplication, percentages, etc.
<u>Using The Tape</u>	Various options you can perform with the tape, such as saving, printing, editing, and reusing entries.
<u>Financial Calculations</u>	How to calculate answers to common financial questions.
<u>Using Memory</u>	When and how to save a number for later reuse.
<u>Copy & Paste</u>	Basic techniques for exchanging data with other applications.
<u>Registration</u>	How to register your copy of Judy's TenKey in order to receive a free copy of Judy's Countdown.

Selecting Visible Components

You can decide which components to show in your TenKey window by using the "Configure | Components" menu.

Components which can be turned on or off include the history tape, memory bar, statistics bar, function bar, trigonometry bar, finance bar, and number pad; the menu bar and entry line are always visible (see also Display Components).

If a component is turned on (i.e., is visible), a check mark appears next to the component's name in the "Configure | Components" menu.

To change a component from visible to invisible (or vice versa), simply select the name of that component from the "Configure | Components" menu. You can control the visibility and the length of the history tape by resizing the main TenKey window, or by using the tape configuration dialog box.

When you initially begin using Judy's TenKey, you may wish to leave everything turned on in order to help you remember the available features. Later, when you are more comfortable with its operation, you may wish to turn off components that do not provide calculation feedback (e.g., number pad, function bar, etc.). By turning off such components, you free up screen space and system resources that you can use for other programs. When you think about it, you really don't need a graphical number pad to perform your calculations . . . the number pad on your keyboard is usually much more convenient and efficient.

Tape Configuration

The Tape Configuration dialog box, available from the "[Configure](#) | Component | Tape" menu option, enables you to control the appearance and the behavior of the [history tape](#).

Visibility: To hide the history tape, click the mouse in the box next to the words: "Show List?". To make it visible, click in the box again. An "x" appears in the box when the tape is configured to be visible (the default).

If you have a favorite setting, but wish to quickly turn the tape display off for a moment, simply uncheck the "Show List?" check box. Even when you disable the history list display, it still keeps track of your calculations, and can show them upon request.

View Length: You can also control the *amount* of tape that is visible. Type the number of lines you would like to see in the "Lines" field, from 1 - 25. If you use the "Show List?" box to hide the tape, the "Lines" setting will have no effect. See also [Resizing The TenKey Window](#).

Close Behavior: When you close a TenKey tape (by exiting the program, opening a different tape, etc.), Judy's TenKey can automatically save it, ask you if you want it saved, or simply ignore it (thereby losing any unsaved work). To change the current close behavior, select the radio button next to the option you prefer. Note that you must [save](#) the configuration for this change to have any effect the next time you run Judy's TenKey.

Resizing The TenKey Window

You can resize the main TenKey window just as you resize any other Windows application: hold the mouse down on a window border and drag to the newly desired size. You cannot change the width of Judy's TenKey, but by adjusting its height you can control the number of history lines that it displays (from 0 to as many as fit on your screen).

Note that you can also control the history tape configuration through the "Configure | Component | Tape" menu option.

Setting The Number Of Decimal Positions

Judy's TenKey allows you to decide how many decimal places you would like to see (in other words, how many digits to the right of the decimal point are shown). Note that setting the number of decimal positions affects only the display; it does not affect internal calculation precision. No matter what your configuration, you can always enter as many decimal digits as you like for a given entry . . . Judy's TenKey will internally keep track of the actual number.

If you frequently deal with money, you might want to set the decimals to 2 (for cents) or 0 (for dollars). If you need to be as precise as possible, use the "As Needed" option in order to display as many as apply to a given result.

Example:	Decimals 0:	"1.279"=>"1"
	Decimals 1:	"1.279"=>"1.3"
	Decimals 4:	"1.279"=>"1.2790"
	Decimals As Needed:	"1.279"=>"1.279"

To change the decimal setting, select the "Decimals" option under the "Configure" menu. From the submenu that pops up, select the number you desire. A check mark appears next to the current setting.

See also [Automatic Decimal Insertion](#).

Automatic Decimal Insertion

Judy's TenKey enables you to skip entering the decimal point for every number.

To turn on automatic decimal insertion, select the "Configure" menu option, then select the Decimals submenu option. Click the submenu choice that says Auto Insert (if it has a check mark next to it, it is already on, and selecting it now will turn it off).

Once you have set automatic decimal insertion, Judy's TenKey will assume that the rightmost digits of your numbers correspond to your current number of decimal positions setting.

For example, if you have 2 decimal places configured, typing "1234" will produce "12.34". This mode of operation can save you significant typing when adding long columns of numbers.

Syntax Overview

Judy's TenKey can process numbers like a normal calculator, a scientific calculator (RPN), or an adding machine. If you are familiar with one and not another, you know how difficult and frustrating it can be to try to switch. Judy's TenKey can behave quite flexibly . . . name your preference.

Syntax refers to the order in which you must enter numbers and operations to achieve your desired results. To change syntax, select the "Syntax" menu option under the "Configure" menu. Then select your desired syntax from the submenu that appears:

Calculator Syntax

Tenkey Syntax

RPN Syntax

Note that changing syntax also clears any ongoing calculations.

Calculator Syntax

This help topic assumes that you are not currently using an adding machine or a scientific calculator (i.e., familiar with tenkey or RPN syntax). If you are, you may find the following discussion somewhat confusing (some of your underlying assumptions may be incorrect). Generally, once you become fluent in a given syntax, there is little to be gained from switching to a new one.

Calculator syntax can basically be expressed as follows:

- 1) Enter a number
- 2) Enter an operation
- 3) Enter a number upon which to perform that operation.
- 4) Repeat steps 2 and 3 as desired.

Examples: $2 + 3 \Rightarrow 5$
 $3 * 3 \Rightarrow 9$
 $5 * 3 \Rightarrow 15$
 $2 + 3 * 3 \Rightarrow 15$

As the last example illustrates, every operation you enter will combine the previous subtotal with the next number you enter. If you do not enter a number in between operations, the calculator will use your displayed subtotal as the default entry:

Examples: $2 + 3 + = \Rightarrow 5 + 5 \Rightarrow 10$
 $2 + 3 + + 6 = \Rightarrow 10 + 6 \Rightarrow 16$

Note: This may seem somewhat complex, but since the running subtotal is displayed on the entry line as you enter your calculation, it actually works very naturally. Try it.

Advanced operations generally take precedence over standard operations, and can modify the second number before it is applied to the subtotal: functions, finance, trigonometry, and percent (%).

Examples: $2 + 3 N! \Rightarrow 2 + 6 \Rightarrow 8$
 $6 * 50 \% \Rightarrow 6 * .5 \Rightarrow 3$

Tenkey Syntax

This help topic assumes that you are not currently using a standard or scientific calculator (i.e., familiar with infix or RPN syntax. If you are, you may find the following discussion somewhat confusing (some of your underlying assumptions may be incorrect). Generally, once you become fluent in a given syntax, there is little to be gained from switching to a new one.

Basically, a tenkey assumes that you are adding a series of numbers. Consequently, the fundamental operation consists of entering numbers and their signs, which the application will sum:

- 1) Enter number.
- 2) Enter its sign.
- 3) Repeat steps 1 and 2 as desired.

Examples: $2+ 3+$ $\Rightarrow 5$
 $2- 3+$ $\Rightarrow 1$
 $2+ 3+ 4-$ $\Rightarrow 1$

A tenkey keeps the last number you entered in its *cache*; if you enter another operator without explicitly typing a new number, the tenkey will use the contents of the cache.

Examples: $2+ + +$ $\Rightarrow 4+ 2+$ $\Rightarrow 6$
 $2+ 3+ +$ $\Rightarrow 5+ 3+$ $\Rightarrow 8$

Note: Only numbers you enter which are followed by a '+' or a '-' get placed into the cache.

Multiplication and division are treated as a sub-calculation within this running sum, and numbers are assumed positive (you can use a negative number within a sub-calculation by using the '+/-' key). When you have finished your sub-calculation, make sure to press the '=' key before trying to incorporate this subtotal into your running sum.

Examples: $2*3=$ $\Rightarrow 6$
 $5+ 2*3= +$ $\Rightarrow 5+ 6+$ $\Rightarrow 11$

Advanced operations generally take precedence over standard operations, and can modify the second number before it is applied to the subtotal: functions, finance, trigonometry, and percent (%).

Examples: $2+ 3N!+$ $\Rightarrow 2+ 6+$ $\Rightarrow 8$
 $6 * 2r =$ $\Rightarrow 6 * .5$ $\Rightarrow 3$

Judy's TenKey provides special handling for the percent (%) operator. If you press the '+' key after calculating a percentage, Judy's TenKey will add the calculated percent to

the original number ('+%'). Also works with the '-' key ('-%').

Example: "40*50%+" => 40+20 =>60
(40*50%=20; 40+50%=40+20=60)

Reverse Polish Notation (RPN) Syntax

This help topic assumes that you are not currently using an adding machine or standard calculator (i.e., familiar with tenkey or infix syntax). If you are, you may find the following discussion somewhat confusing (some of your underlying assumptions may be incorrect). Generally, once you become fluent in a given syntax, there is little to be gained from switching to a new one.

Basically, RPN syntax requires you to enter 2 numbers followed by an operator (e.g., 2,3,+). To let Judy's TenKey know that you have finished entering the first number, press the $\langle \Rightarrow \rangle$ button or the $\langle \text{Enter} \rangle$ key. Then enter the second number, and select the desired operator. RPN syntax can be summarized as follows:

- 1) Enter number.
- 2) Press the $\langle \Rightarrow \rangle$ button or the $\langle \text{Enter} \rangle$ key.
- 3) Enter another number.
- 4) Choose an operation.
- 5) Repeat steps 3 and 4 as desired.

Examples: $2 = 3 + \Rightarrow 5$
 $2 = 3 - \Rightarrow -1$
 $2 = 3 * \Rightarrow 6$
 $2 = 3 * 5 + \Rightarrow 6 = 5 + \Rightarrow 11$

You may create more complex expressions by using the $\langle \text{Enter} \rangle$ key to hold certain numbers in reserve while you focus on a more immediate subcalculation. Commonly, numbers held in reserve are said to be on the "stack", and get "popped" off the stack on a first-in, last-out basis. Most scientific calculators give you a stack that can hold 3 to 5 numbers; Judy's TenKey allows you to place as many numbers on the stack as you want.

Examples: $2 = 3 = 4 + - \Rightarrow 2 - (3 + 4) \Rightarrow -5$
 $2 = 3 + = 4 = 5 + * \Rightarrow (2 + 3) * (4 + 5) \Rightarrow 45$

Advanced operations generally take precedence over standard operations, and can modify the second number before it is applied to the subtotal: functions, finance, trigonometry, and percent (%).

Examples: $2 = 3 N! + \Rightarrow 2 + 6 \Rightarrow 8$
 $6 = 2 r * \Rightarrow 6 * .5 \Rightarrow 3$

Always On Top

The "Always On Top" option of the "Configure" menu allows you to keep Judy's TenKey on top of all other windows (in other words, prevent any other window from covering it). This menu option is also available from the window's system menu, so you can directly adjust it even when the program is iconified.

"Always On Top" can be quite useful when working on large documents or spreadsheets. It allows you to fill most of your screen with your document, yet still have access to your TenKey without having to hunt for it.

Note: Some older screen savers will not cover Judy's TenKey when this setting is enabled.

Red Negatives

The "Negatives Red" option of the "Configure" menu allows you to control whether negative numbers appear in red on the history tape. Negative numbers are those preceded by a '-' (e.g., "-23.25").

When using tenkey syntax, numbers followed by a '-' are also shown in red (e.g., "23.25 -").

International Number Formats

Judy's TenKey supports Microsoft Windows international number formats. If you wish to change the character that Judy's TenKey uses as the thousands separator or the decimal point, use the International icon within the Windows Control Panel.

To make things as easy as possible, Judy's TenKey always interprets the number pad period (".") as a decimal point when you enter numbers from the keyboard.

Saving Your Configuration

You can save any changes you have made to your configuration so that the next time you run Judy's TenKey it remembers and uses your preferences. Saving your configuration records:

Visible Components

Decimals Setting

Syntax

Red Negatives

Always On Top

Screen Position

To save your configuration, select the "Save Settings" option from the "Configure" menu.

Registration Benefits

If you have not purchased your copy of Judy's TenKey, you must pay a registration fee to continue using it after the 60 day evaluation period. Registration provides the following benefits:

Free Copy of Judy's Countdown™: You will receive a free copy of Judy's Countdown to help you track important dates.

32-Bit Version: Registered users receive both 16-bit (runs on any version of Windows equal to or better than 3.1) and 32-bit versions of the program (more efficient for newer operating systems such as Windows NT or Windows '95).

Update Notification: You will receive timely notifications of new version releases, and will qualify for a reduced upgrade fee.

Support: Any questions you may have about the use of Judy's TenKey will be answered for a period of at least one year. You can contact us via CompuServe (70574,2247), Prodigy (ndjf84a), or U.S. mail (see Registration Procedure for our address). If you encounter a serious problem using Judy's TenKey within 3 months of registration, we will either fix the problem or refund your registration fee. Judy's TenKey has been produced by a member of the Association of Shareware Professionals, entitling you to their support in problem resolution.

Peace Of Mind: You will be able to sleep at night knowing that you have acted ethically. If you wish to encourage the continued development of low-priced shareware, you must do your part to support it. A great deal of work has gone into the creation of this program, and the requested registration fee is quite modest.

If you purchased your copy through a retail distributor (such as *CompUSA*), you may register your copy at no additional cost, but you will not receive a copy of Judy's Countdown. You will be notified of new version releases, and be eligible for reduced fee upgrades.

See also Registration Procedure.

Registration Procedure

Judy's TenKey™ is distributed via retail channels and via copyrighted shareware. If you have not purchased your copy of the program directly, you must register to continue using it after the 60 day evaluation period. If you have purchased your copy directly, you should register (at no charge, of course) to make sure you receive timely notification of new releases. See also [Registration Benefits](#).

To register your copy, send your name, address, and check or money order for \$19.95 plus \$2.95 shipping and handling (CA residents please add 8.25% sales tax; retail customers send no money at all) to:

Judy's Applications
2464 El Camino Real, Suite #125
Santa Clara, CA 95051
USA

International customers may either contact us at the above address, or use one of our [international distributors](#).

For your convenience, you can print a registration form directly from Judy's TenKey using the "[Configure | Register](#)" menu option. If you do not have a printer, feel free to send us a handwritten note instead. Just remember to send us your name and your address!

You can also use your Visa or Mastercard by calling 800-242-4775, but please be aware that the operator cannot answer any questions concerning the technical operation of the program. If you have any problems using the 800 number, please use the registration form described above (the 800 number registration service actually consumes quite a bit of our low registration fee, so we prefer you to use the registration form anyway).

If you choose not to register your copy, please [uninstall](#) Judy's TenKey from your system.

Registration Dialog Box

The Registration Dialog Box is available from the "Configure | Register" menu option. It summarizes registration instructions and provides access to additional information via the following buttons:

Button	Description
Register Now...	Prints a registration form which you can fill out and <u>mail</u> to Judy's Applications.
More Info...	Brings up the help topic which describes <u>registration benefits</u> .
International...	Brings up the help topic which describes alternate registration methods for <u>international customers</u> .

International Registration

International customers can register in one of three ways:

- 1) Mail a check or money order, payable in U.S. funds, to our normal mailing address.
- 2) Or call our USA registration service at 713-524-6394 (fax 713-524-6398). Please be aware that these numbers are for registrations only . . . the operator cannot answer any questions concerning the technical operation of the program (see Technical Support).
- 3) Or contact our international distributor:

WindowShare SARL
B.P. 2078
57051-METZ cedex 2
France

Phone: (33) 87-30-85-57

(Price 160FF, including TVA and S&H)

Association of Shareware Professionals (ASP)

This program is produced by a member of the Association of Shareware Professionals (ASP). ASP wants to make sure that the shareware principle works for you. If you are unable to resolve a shareware-related problem with an ASP member by contacting the member directly, ASP may be able to help. The ASP Ombudsman can help you resolve a dispute or problem with an ASP member, but does not provide technical support for members' products. Please write to the ASP Ombudsman at 545 Grover Road, Muskegon, MI 49442 or send a CompuServe message via CompuServe Mail to ASP Ombudsman 70007,3536.

Installing Judy's TenKey

To install Judy's TenKey, run "install.exe" from the File Manager by double-clicking on it or by using the "File | Run" command. See also [Network Installation](#).

- 1) Press the <Install> button.
- 2) Enter your name in the "Your Name" field (for example, "John Smith").
- 3) Verify that the "From Directory" information is correct. It should specify the name of the directory that contains the Judy's TenKey program files (typically, "A:\").
- 4) Enter the directory where you would like to install Judy's TenKey (C:\TenKey by default). Judy's TenKey will create it if necessary.
- 5) Optionally set your preferred syntax (you can change this later if you are unsure).
- 6) Optionally set Judy's TenKey to start every time you start Windows. This option will add the necessary information to the "load=" line in your win.ini file, causing Judy's TenKey to appear as an icon at the bottom of your screen whenever you start Windows. You can later accomplish the same thing by manually dragging the TenKey icon to your Startup Group.
- 7) Press the <OK> button.

You *must* use the installation program that comes with Judy's TenKey to install your copy, or your installation will not be licensed and you will eventually receive warning messages whenever you start the program.

Network users should *not* each run the installation program; the installation program should be run only once per site. Individual network users can simply begin using the program as they would any other shared program (to create an icon for Judy's TenKey, simply drag the "tenkey.exe" file from the File Manager to an appropriate group within the Program Manager).

See also [Program Files](#) and [Replacing the Default Windows Calculator](#).

Network Installation

To install Judy's TenKey on a network, your system administrator should install Judy's TenKey following normal installation procedures.

Individual users do *not* need to run the installation program (other than to explore the tutorial demonstration).

Each user should access Judy's TenKey the same way they access other shared applications. For example, a networked user could create an icon for Judy's TenKey by simply dragging the "tenkey.exe" file from the File Manager to an appropriate group within the Program Manager. Configuration settings for individual users are stored in their local Windows directory, in accordance with Microsoft Windows standards.

Uninstalling Judy's TenKey

If you decide not to register Judy's TenKey, please remove it from your system by pressing the "uninstall" button on the main display of the installation program that came with Judy's TenKey.

If you are running Program Manager, the installation program should be available from the group named "Judy's Applications".

Program Files

The following files are required for Judys TenKey operation:

File	Purpose
tenkey.exe	The main executable program file.
tenkey.hlp	The help file. Must be located in the same directory as the executable file.
tenkey.ini	The initialization file (stores your configuration settings). Must be located in the Windows directory.
tenkey.lic	The license file. Must be located in the same directory as the executable file.
tenkey.tip	Contains "Tip of the Day" information. Must be located in the same directory as the executable file.

Do not attempt to move or rename these necessary program files unless you are an experienced Windows user.

Moving Program Files

If you move the location of the main program files, remember that the "ini" file must remain in the Windows directory, and the others must remain together.

The installation program looks in your "win.ini" file to find the location of the TenKey files (for running the demo or for uninstalling). If you move the files, you may want to update the TenKey section in your "win.ini" file to contain the new location of your TenKey files.

```
[TenKey]
Path=C:\TENKEY
```

Renaming Program Files

You may also rename the TenKey program files, but you must rename them all to match. For example, you could change their names to: "tk.exe", "tk.hlp", "tk.ini", "tk.lic", and "tk.tip". If you do rename them, however, the installation program will no longer be able to recognize them to run the demo or to uninstall them.

See also [Replacing the Default Windows Calculator](#).

Replacing the Default Windows Calculator

Some programs automatically utilize the default Windows calculator. If you would like them to use Judy's TenKey instead, simply:

- 1) Remove the existing calc.exe and calc.hlp files from the Windows directory (you may want to rename them to wincalc.exe and wincalc.hlp for later reference).
- 2) Copy the files tenkey.exe, tenkey.hlp, tenkey.lic, and tenkey.tip from the directory where you installed Judy's TenKey.
- 3) Rename the files to calc.exe, calc.hlp, calc.lic, and calc.tip.

This procedure works with most Windows programs. See also [Program Files](#).

Starting Judy's TenKey

To start Judy's TenKey from the Microsoft Window program manager, either:

- 1) Double-click on the Judy's TenKey icon.
- 2) Or, select the Judy's TenKey icon and use the "File | Open" Program Manager menu option.
- 3) Or use the "File | Run" Program Manager menu option and type "*dir*\tenkey.exe", where *dir* is the complete path of the directory into which you installed Judy's TenKey ("tenkey" by default).

To automatically open the same tape file every time you start Judy's TenKey (so you can automatically pick up where you left off, for example), pass the complete name of the tape file as an argument on the command line.

Example: "C:\TENKEY\TENKEY.EXE C:\DATA\TAPE.TK"

Command Line

In the Windows Program Manager, use the "File | Properties" menu option to edit the command line.

Example Operations

Performing basic operations (e.g., +, -, *, /) differs according to your selected syntax:

Calculator Syntax

Tenkey Syntax

RPN Syntax

See also Buttons & Keyboard.

Using Memory

Judy's TenKey allows you to save a number for later recall and use. For example, if you plan to multiply several items by the same factor, you may want to first enter the factor and then follow these instructions:

- 1) Press <MS> to store the number.
- 2) Enter your next calculation.
- 3) When appropriate, press <MR> to recall your number.
- 4) Continue with your calculation.
- 5) Repeat steps 2 - 4 as desired.

Judy's TenKey allows you to store one number at a time. Pressing the <MS> button overwrites any previous contents of the memory. When you have a number stored in the memory, an "M" appears in the memory status box.

You can add to the contents of the memory by pressing the <M+> button, causing the current number displayed on the entry line to be added to the current contents of the memory. To subtract a number, press the <+/-> button to change the sign of the number on the entry line before pressing the <M+> button.

Normally, the memory buttons apply to the standard entry bar. However, if you are editing a tape entry, they will operate on that entry. For example, you can replace the value of a tape entry with the memory contents by double-clicking on the target entry number, then pressing the <MR> button.

See also Memory Bar.

Using The Tape

Judy's TenKey automatically records your calculations in a scrolling tape, which you can configure to be visible or invisible.

Clicking the right mouse button on a tape entry provides a pop-up menu of available actions for that entry (see also "Edit" Menu Commands").

Category	Summary
<u>File Operations</u>	Save tape contents to a file, open a previously saved tape, print the current tape, and more.
<u>Selecting Entries</u>	Highlight tape entries for copying, deleting, calculating statistics, modifying, or reusing.
<u>Editing Entries</u>	Change numbers or operations and recalculate your results.
<u>Copy & Paste</u>	Copy selected tape entries to another application, paste data from another application, etc.
<u>Statistics</u>	Calculate statistics about selected tape entries such as sum and standard deviation.
<u>Reusing Entries</u>	Reuse tape entries in subsequent calculations.
<u>Resizing</u>	Change the visible length of the tape.

Selecting Tape Entries

You can select tape entries for "Edit" operations, statistical calculations, or reuse. Selected entries appear highlighted.

Using the Mouse:

To select a single entry, click the left mouse button when your cursor is over the desired entry.

To highlight several contiguous entries, hold the mouse button down and drag your cursor over the desired entries. Alternately, select the first entry normally, then hold the <Shift> key down when you select the last entry -- all entries in between the two will be selected.

To highlight several non-contiguous entries, select each additional entry while holding down the <Ctrl> key. Clicking (while holding down the <Ctrl> key) on an entry that has already been selected will cause it to become deselected.

Using the Keyboard:

First, press the <Tab> key, causing the topmost visible tape entry to become selected.

Change your selection using the arrow keys or the page keys.

To select multiple, contiguous entries, hold down the <Shift> key while using the arrow or page keys.

You cannot select multiple, non-contiguous entries using only the keyboard.

You can select all tape entries via the "Edit | Select All" menu command. Alternately, you can deselect all tape entries via the "Edit | Deselect All" menu command. See also "Edit" Menu Commands.

See also Using The Tape.

Editing Tape Entries

- 1) To change a line in the tape, either:
 - a) Double-click on the tape entry element (number or operator) you wish to modify.
 - b) Or, click the right mouse button on the tape entry you wish to modify, then use the "Modify" pop-up menu option to choose the entry element.
 - c) Or, select the desired tape entry and use the "Edit | Modify" menu option to pick the element.
- 2) Enter the new value (number or operator).
- 3) Judy's TenKey will automatically make any recalculations required by your changes. Note that the recalculation caused by tape edits is *not* the same as replaying your original keystrokes (see Notes on Tape Recalculation for details).

See also Using The Tape.

Changing Tape Numbers

- 1) Enter the new number by typing, pressing the number pad buttons, or using the memory recall button.
- 2) Press the <Enter> key to commit your changes (causing the tape to recalculate), or the <Escape> key to cancel them.

Note that any edits in progress are automatically committed if you begin editing another line, you close the tape, or you exit the application.

Changing Tape Operators

Enter the new operator by pressing the appropriate TenKey button or using its keyboard equivalent. The tape will be automatically recalculated.

To leave an operator unchanged that you have begun editing, do not enter a new operator and instead press the <Escape> key.

Notes on Tape Recalculation

Tape recalculation is *not* the same as replaying your keystrokes. When Judy's TenKey recalculates a tape because of an edit, it uses only information available from the tape (i.e., it does not remember and replay your original keystrokes).

This approach enables Judy's TenKey to export tape information to another application, read it back in, and recalculate the same answer. It also minimizes potential confusion because "what you see is what you get" (i.e., Judy's TenKey uses the entries as they appear, not as they were formed).

Example: Suppose you have the following tape (using calculator syntax):

```
2.00  +
3.00  =
5.00  T

5.00  +
1.00  =
6.00  T
```

Now suppose you edit the first line and change it from a 2 to a 1. Judy's TenKey will display the following recalculated tape:

```
1.00  +
3.00  =
4.00  T

5.00  +
1.00  =
6.00  T
```

Note that the first total changes from 5 to 4, but the second total remains unchanged. If Judy's TenKey replayed keystrokes, your edit might have caused the "5.00 +" line to change to "4.00 +" (if your original keystrokes were "1 + 3 = + 1") . . . or not (if your original keystrokes were "1 + 3 = 5 + 1 ="). It is to avoid such confusion that Judy's TenKey follows the "what you see is what you get policy".

Quick Num

You can quickly place a number from the tape into the entry line by either:

- 1) Click the right mouse button on the number you wish to reuse, then select "Reuse Number" from the resultant pop-up menu.
- 2) Or, select the tape entry containing the desired number, then use the "Edit | Reuse Number" menu option.

You can then either use the number directly (for example, by pressing the "+" button), or modify it by pressing the backspace key.

Using Financial Functions

Judy's TenKey supports advanced financial functions such as loan payment calculation, investment growth, retirement fund requirements, and more. See [Finance Bar](#) for details on individual financial functions.

In general, to use an advanced financial function:

- 1) Press the financial button that corresponds to the quantity you wish to calculate. For example, to calculate the payments on a loan, press the <Pmt> button.
- 2) Enter the requested information into the dialog box that appears. Note that interest rates are expressed using the '%' symbol (e.g., eight percent is expressed as '8%' or just '8').
- 3) Click on the <Calculate> button (or just press the <Return> key).

Record on Tape: Normally, every time you press the <Calculate> button, Judy's TenKey displays the financial result within the current dialog box, *and also appends the complete calculation to the tape*. This feature is quite powerful, and gives you the ability to easily review and compare several different financial scenarios.

You can temporarily disable this feature by unchecking the "Record on Tape" checkbox.

Note that the tape always lists the interest rate percentage as the second number, the duration as the second-to-last number, and the answer last.

Calculation Target: Some financial dialogs let you pick the element you wish to calculate (for example, the Loan dialog lets you calculate the total loan amount or the monthly payment). If a financial dialog supports this feature, you will see a radio button next to each element that can function as the calculation target. To pick a new calculation target, simply click on the radio button next to the name of the element you wish to calculate. Then enter the required information into the other fields, and press the <Calculate> button.

Using the Clipboard

Copying Data To Other Applications:

Judy's TenKey enables you to copy selected tape entries to other applications.

- 1) Select the information you wish to copy.
- 2) Use the "Edit | Copy" command.
- 3) From the desired destination application, use the "Paste" command to insert your information.

Pasting Data From Other Applications:

Judy's TenKey also allows you to paste information into the tape, modifying your calculations.

- 1) Place the desired information into the Windows clipboard (via another Windows program or even Judy's TenKey itself). Judy's TenKey uses heuristic reasoning to interpret the information you paste, so it is usually not necessary to strip out any extra text that may be intermingled with the numeric operations.
- 2) Optionally select a tape line as the insertion point (with no lines selected, the data will be appended to the bottom of the tape).
- 3) Use the "Edit | Paste" command to insert the data (see also Notes on Tape Recalculation).

Only Numbers:

You can choose to copy or paste only numbers using the "Edit | Special" menu command. Using this method, the exchanged information will not include operations. This option is especially useful when copying information to a spreadsheet, or pasting a series of numbers for which you then wish to calculate statistics.

Entry:

The "Edit | Special" menu allows you to copy or paste the information in the entry line (rather than selected tape entries).

See also the "Use" command and the "Edit" menu.

The "Use" Command

Judy's TenKey enables you to "reuse" information in the history tape or the Windows clipboard as input for your current calculations. This capability can substantially reduce the amount of typing you do, saving time and minimizing the possibility of typing errors.

Note that reusing tape entries is *not* the same as replaying your original keystrokes (see Notes on Tape Entry Reuse for details).

Reusing Tape Entries:

Frequently there are parts of a calculation that you wish to reuse in subsequent calculations. Simply select the tape entries you wish to reuse, then press the <Use> button whenever you want to reuse them (Judy's TenKey keeps your selected entries highlighted until you select other entries).

See also Quick Num.

Using Clipboard Contents:

To use information in the clipboard as input for your current calculation, make sure all tape lines are deselected (to avoid inserting the data in a previous location), then use the "Edit | Paste" menu option.

Notes on Tape Entry Reuse

It is important to remember that tape entry reuse is *not* the same as replaying your keystrokes. When Judy's TenKey reuses tape entries, it uses only information available from the tape (i.e., it does *not* remember and replay your original keystrokes).

This approach enables Judy's TenKey to export tape informationUsingTheClipboard to another application, read it back in, and recalculate the same answer. It also minimizes potential confusion because "what you see is what you get" (i.e., Judy's TenKey uses the entries as they appear, not as they were formed).

Example: Suppose you have the following tape (using calculator syntax):

```
2.00 +
2.00 +
4.00 =
8.00 T
```

Now suppose you type "4 +" and then reuse the above tape entries, causing a second series of tape entries to appear:

```
4.00 +
2.00 +
2.00 +
4.00 =
12.00 T
```

Note that the reused lines look identical, except for the total (which is always recalculated). If Judy's TenKey replayed your keystrokes, the reused lines might have totaled 24 (if your original keystrokes were "2 + + ="), or 16 (if your original keystrokes were "2 + + 4 ="), or 12 (if your original keystrokes were "2 + 2 + 4 ="). It is to avoid such confusion that Judy's TenKey follows the "what you see is what you get policy".

Menu Commands

Menu commands can be accessed via the mouse or the keyboard.

Option	Purpose
<u>File</u>	Print, save, and restore history tapes.
<u>Edit</u>	Cut, copy, and paste numbers between applications; modify the tape.
<u>Configure</u>	Customize your TenKey's appearance and operation.
<u>Help</u>	Access this help system.

"File" Menu Commands

These commands control history tape files (see also [Using the Tape](#)):

Command Accelerator	Function	
New	Ctrl+N	Replace the current tape with a new blank one (and start a new calculation).
<u>Open</u>		Replace the current tape with a previously saved one (and start a new calculation).
Clear	Ctrl+L	Erase the contents of the current tape (and start a new calculation). Does not affect the saved file until you explicitly save the new version.
Save	Ctrl+S	Store the current contents of the history tape into a file, overwriting any previous contents. If the tape has never been saved, Judy's TenKey will prompt you for a file name.
Save As		Store the current contents of the history tape into a new file. Enter the desired file name in the dialog box that appears; use standard DOS file naming conventions (i.e., an optional path plus at most 8 characters with a 3 character extension).
<u>Print</u>	Ctrl+P	Print the contents of the current tape.
Exit		Close Judy's TenKey. The fate of the history tape is determined by the " Tape Close Behavior " configuration setting.

Print Command

You can print a tape using the "Print" command available from the "File" menu (or simply press Ctrl+P).

To print just a portion of the tape (the entire tape is printed by default):

- 1) Highlight the portion of the tape you wish to print.
- 2) Select the "File | Print" menu command . . . a standard print dialog box will appear.
- 3) Within the "Print Range" area of the print dialog box, choose "Selection" and press "OK".

To print a tape to a file:

- 1) Follow the normal steps for printing a tape, but before pressing "OK" in the print dialog box, select the "Print to File" checkbox. Now press "OK".
- 2) In the "Print to File" dialog box which appears, enter the name of the file to which you wish to print, and press "OK".

Note that this file will contain printer commands, and will not be readable by a normal text editor. One way to print this file is to use the command: "copy /b *filename* *lpt1:*", where *filename* is the name you entered in step <2>, and *lpt1:* is the name of your printer port.

Open Command

You can open a previously saved tape (or a foreign format file) using the "Open" command available from the "File" menu.

The open command brings up the standard Windows File Open dialog box. Either type the name of the desired file into the File Name field, or select one from the list immediately below the File Name field. You can enter path information into the File Name field, or navigate to a different directory by double-clicking on the various directories listed to the right.

If you wish to open a non-TenKey file, simply enter its name and Judy's TenKey will attempt to read it using the same intelligent text interpretation algorithms it uses for copy & paste.

See also [automatic open](#).

"Edit" Menu Commands

These commands enable you to copy and paste information between Judy's TenKey and other Windows applications (see also [Using The Clipboard](#)); they also enable you to modify existing tape entries.

Command Accelerator	Function	
Cut	Ctrl+X	Deletes any selected tape entries (causing the tape to <u>recalculate</u>) and places them in the Windows clipboard.
Copy	Ctrl+C	Copies any selected tape entries to the Windows clipboard. Note that if no tape lines are selected, it copies the contents of the main entry line to the clipboard (this command is also always available under the " <u>Edit Special</u> " menu option).
Paste	Ctrl+P	Inserts clipboard contents into the tape above the first selected tape line, causing it to automatically recalculate. If no tape lines are selected, it appends the data to the bottom of the tape.
Delete	Del	Deletes any selected tape entries (causing the tape to <u>recalculate</u>).
<u>Special</u>		Submenu for less common copy & paste functions.
Insert Line	Ins	Inserts a blank line above the first selected tape entry (having no effect on the calculation). If no entries are selected, it appends the line to the bottom of the tape.
<u>Reuse Number</u>		Puts a copy of the highlighted tape entry number into the entry line.
<u>Reuse Lines</u>	U	Uses the highlighted tape entries as input to the current calculation.
<u>Modify</u>		Submenu enabling you to modify a portion of a selected tape entry.
Deselect All	Ctrl+D	Deselects all tape entries.
Select All	Ctrl+/	Selects all tape entries.

"Edit | Special" Menu Commands

These commands are available via the "Special" option of the "Edit" menu (see also [Using the Clipboard](#)). Many of these commands have keyboard accelerators, which enable you to work directly via the keyboard.

Command	Accelerator	Function
Copy Only Numbers		Copies the numeric portion of any selected tape entries to the Windows clipboard. Does not copy the operators.
Paste Only Numbers		Inserts clipboard contents into the tape above the first selected tape line, skipping over any non-numeric data (including operators). If no tape lines are selected, it appends the data to the bottom of the tape.
Copy Entry	Ctrl+E	Copies the number displayed in the entry line and places it in the Windows clipboard. Note that if no tape lines are selected, the " <u>E</u> dit <u>C</u> opy" command performs the same function.
Clear Entry	Shift+Back	Changes the entry line number to 0. See also Number Pad .

"Edit | Modify" Menu Commands

These commands are available via the "Modify" option of the "Edit" menu (as well as the right mouse menu pop-up for tape entries).

In general, these commands enable you to specify which portion of the selected entry you wish to edit. See also Editing Tape Entries.

Command	Function
Number	Allows you to edit the number of the selected tape line, causing the tape to recalculate as needed. Press <Enter> when you are done, or <Escape> to cancel.
Operator	Allows you to edit the operator (e.g., +,-) of the selected tape line, causing the tape to recalculate as needed.
Make Break	Changes the selected line to a <u>break line</u> .

Tape Break Lines

A break line in the tape appears as a blank line, but it acts as an impenetrable barrier. Calculations above the line have no effect on calculations below the line. Inserting a break line is the same as starting a completely new calculation.

When you press the "Clear" button or the <Escape> key, the current calculation is halted and a break line is appended to the tape.

If you wish to insert a break line into an existing tape,

- 1) Select the line after the desired break.
- 2) Use the "Edit | Insert Line" command to insert a blank line.
- 3) Use the "Edit | Modify | Make Break" menu command to change the blank line into a break line.

Tape Number Lines

If a number in the tape has no associated operator (e.g., +,-,*,...), then Judy's TenKey displays the default '#' operator and colors the line golden to remind you that the number is not being used in the current calculation (other than perhaps for statistical calculations driven by the current tape selection).

Such *number lines* are created when:

- 1) You enter the '#' symbol from the keyboard rather than a normal calculation operator.
- 2) You edit the number of a previously blank line.
- 3) You use the "Edit | Special | Paste Only Numbers" menu option.

To transform a number line into a normal tape line that contributes to the calculation, edit the operator field and type over the '#' symbol with the desired operator.

"Configure" Menu Commands

These commands allow you to customize your TenKey's appearance and functionality.

Command	Accelerator	Function
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<u>Components</u>		Specify the TenKey elements you want displayed (number pad, history tape, etc.).
<u>Decimals</u>		Set the number of digits past the decimal point that Judy's TenKey displays, and control automatic decimal insertion.
<u>Syntax</u>		Choose how you want Judy's TenKey to interpret your input (calculator, tenkey, or scientific mode).
<u>Negatives Red</u>		Toggle whether Judy's TenKey records negative numbers in red.
<u>Always On Top</u>	Ctrl+T	Toggle whether Judy's TenKey allows other windows to cover it.
<u>Tip of the Day</u>		Toggle whether Judy's TenKey displays a helpful tip when starting up.
<u>Register</u>		Read instructions for registering your copy of Judy's TenKey™. Judy's TenKey is provided as copyrighted © shareware, which means that if you decide you like the program and you wish to continue using it, you must pay a small licensing fee.
<u>Save Settings</u>	Ctrl+W	Record the configuration settings you have made, so that Judy's TenKey will use them next time you run the program.

Tip of the Day

Judy's TenKey displays a helpful tip every time you start the program. You can page through the available tips using the <Next> and <Prev> buttons in the "Tips" dialog box. If you want more information about a given tip, try searching the help system with keywords from the tip.

To disable this feature, either:

- 1) In the "Tips" dialog box, uncheck the "Show tips at startup" checkbox.
- 2) Or, use the "Configure | Tip of the Day" menu option.

To later re-enable this feature, use the "Configure | Tip of the Day" menu option.

"Decimals" Menu Commands

These commands are available from the "Decimal" option of the "Configure" menu, and allow you to customize the way Judy's TenKey deals with decimals.

Command	Function
<u>Number</u>	Set the number of digits past the decimal point that Judy's TenKey displays.
<u>Auto Insert</u>	Have Judy's TenKey automatically insert decimal points in your numbers as you type them.

See also International Number Formats.

"Help" Menu Commands

These commands focus the help system on the selected topic:

Command	Topic Description
<u>Getting Started</u>	Reviews the basic fundamentals of Judy's TenKey and helps you begin using the program.
<u>Tasks</u>	Explains how to use Judy's TenKey to accomplish various goals.
<u>Menus</u>	Outlines the purpose of each menu option.
<u>Keyboard</u>	Explains the function of the calculator buttons and lists their keyboard equivalents.
About	Displays the program version number and the owner of this copy.

Buttons & Keyboard

You can always use the keyboard to access any capability supported by Judy's TenKey, regardless of whether the buttons that control that capability are visible on the screen.

Component	Topic Description
<u>Function Bar</u>	Advanced mathematical calculations.
<u>Finance Bar</u>	Common financial analyses. Uses capital letters for keyboard access.
<u>History Tape</u>	Tape manipulation using the keyboard.
<u>Memory Bar</u>	Store a number for later recall and use. Uses capital letters for keyboard access.
<u>Menu Bar</u>	Menu selection via the keyboard.
<u>Number Pad</u>	Enter numbers; perform basic mathematical operations.
<u>Statistics Bar</u>	Calculate statistics of selected tape entries.
<u>Trigonometry Bar</u>	Trigonometric functions. Uses Alt+key combinations for keyboard access.

Common keyboard commands have been chosen to allow you to operate very efficiently using only one hand (centered on the number pad of your keyboard). An exception to this rule is the Clear command, which is a drastic action and is therefore located at the opposite side of the keyboard.

Menu Bar

At the top of the TenKey window is a basic menu bar that provides access to the menu commands. You can access this menu bar using the mouse or the keyboard.

Keyboard Access:

Press the <Alt> key to access the menu bar. Use the arrow keys to navigate through the menu choices. Alternately, you can skip directly to your desired choice by typing the letter that appears underlined in that choice. Press the <Enter> key to activate a choice that you have highlighted.

Keyboard Accelerators:

Some menu functions provide keyboard accelerators (usually listed beside the menu choice) which enable you to activate menu functionality without first activating the menu. Keyboard accelerators often require you to press two keys simultaneously (e.g., Ctrl+X). If an accelerator requires two keys, we recommend that you press and hold the modifier key (i.e., Ctrl, Shift, or Alt), then press the other key specified. See also the "File" and "Edit" menus.

Memory Bar

Allows you to save a number for later use. The memory status window, located to the far right of the memory bar, shows an "M" when a number has been saved, and appears blank when the memory is empty.

Button	Key	Function
MS	Shift-S	<u>Memory Store</u> . Places a copy of the number currently displayed in the <u>active entry</u> into memory, causing an "M" to appear in the memory status window.
MR	Shift-R	<u>Memory Recall</u> . Places a copy of the memory contents into the <u>active entry</u> , replacing whatever was previously displayed there.
MC	Shift-C	<u>Memory Clear</u> . Removes any number stored in memory, causing the memory status window to appear blank.
M+	Shift-A	<u>Memory Add</u> . Adds number currently displayed in the <u>active entry</u> to contents of memory.

The Active Entry

The **active entry** is normally the main entry line. However, while you are editing a tape entry, that tape entry is the **active entry**.

Keyboard Manipulation of the Tape

To manipulate the tape using the keyboard, first press the <Tab> key to select the topmost visible tape entry.

To then scroll the tape, use the arrow keys or the page keys.

See also [Selecting Tape Entries](#).

Statistics Bar

Allows you to calculate statistics for selected tape entries. See also Display Components

Button	Key	Function
Ave	a	<u>Average</u> . Adds the numbers in the selected lines and divides by the number of lines. Ignores blank lines. <u>Tenkey Syntax</u> : Considers trailing operators (+,-) when calculating average value.
Cnt	c	<u>Count</u> . Counts the number of lines selected. Ignores blank lines.
<u>Sum</u>	m	<u>Sum</u> . Adds the numbers in the selected lines. Ignores blank lines. <u>Tenkey Syntax</u> : Considers trailing operators (+,-) when calculating sum.
Dev	d	<u>Deviation</u> . Calculates the standard deviation of the highlighted numbers. <u>Tenkey Syntax</u> : Considers trailing operators (+,-) when calculating standard deviation.
Use	u	<u>Use</u> . Reuses the highlighted entries in the current calculation. See also the " <u>Use</u> " Command.

Function Bar

The function bar provides advanced mathematical functionality. See also [Display Components](#).

Button	Key	Function
1/X	r	<u>Reciprocal</u> . Calculates the inverse of the number currently displayed on the entry line (i.e., 1 divided by the number). Example: "2r" => 0.5 (1/2 = 0.5).
X^Y	^	<u>Exponent</u> . Raises the first number to the power of the second number (i.e., multiplies the number by itself the number of times you specify). Example: "5^2=" => 25 (5*5=25). "5^3=" => 125 (5*5*5=125). <i>RPN Syntax</i> : When using RPN Syntax, follow standard multi-argument procedures (e.g., "5=2^" => 25).
Sqrt	q	<u>Square Root</u> . The square root of a number is defined to be that number which, when multiplied by itself, equals the starting number. Example: "9q" => 3 (3*3=9).
N!	f	<u>Factorial</u> : Calculates the factorial of the current entry (i.e., $N*(N-1)*(N-2)*...*1$). This function only works with whole numbers. Example: "4f" => 24 (4*3*2*1=24). "6f" => 720 (6*5*4*3*2*1=720).
Log	l	<u>Logarithm</u> . Calculates the base 10 logarithm of the current entry (works only with positive numbers). You can also calculate the <u>inverse</u> logarithm. Example: "100l" => 2 (10^2=100). "1000l" => 3 (10^3=1000).

Trigonometry Bar

The trigonometry bar includes a row of standard buttons (sin, cos, tan, pi, ln), and another row of modifier settings (radians or degrees, inverse, hyperbolic) that affect the functionality of those buttons.

The following table describes the default behavior of the trigonometry buttons (assuming numbers expressed in degrees):

Button	Key	Function
Sin	Alt+s	<u>Sine</u> . Calculates the sine of the number in the entry line. Example: "90Sin" => 1
Cos	Alt+o	<u>Cosine</u> . Calculates the cosine of the number in the entry line. Example: "90Cos" => 0
Tan	Alt+t	<u>Tangent</u> . Calculates the sine divided by the cosine (sin/cos) of the entry line. Example: "45Tan" => 1
Pi	Alt+p	<u>Pi</u> . Places the value of pi in the entry line. This function is unaffected by any of the trigonometry modifier settings.
Ln	Alt+l	<u>Logarithm</u> . Calculates the natural logarithm of the current entry (works only with positive numbers). Example: "2.718Ln" => 1

Trigonometry Modifiers

The Trigonometry Bar includes a row of modifier controls that affect the functionality of the standard trigonometry buttons.

The leftmost two radio buttons control the units for trigonometric functions. You must choose one or the other.

Button	Key	Function
Deg	Alt+d	<u>Degrees</u> . Tells Judy's TenKey that all trigonometric functions should be performed in degrees. Example: "90Sin" => 1
Rad	Alt+r	<u>Radians</u> . Tells Judy's TenKey that all trigonometric functions should be performed in radians. Example: "90Sin" => 0.894

The rightmost two check boxes modify the functionality of trigonometric functions. You can pick none, one, or both. As soon as you use an applicable trigonometric function, the check boxes reverts to their unchecked states.

Button	Key	Function
Inv	Alt+i	<u>Inverse</u> . Tells Judy's TenKey that the next trigonometric function should calculate its inverse (in other words, calculate the value that would have led to the number currently in the entry line). This function also applies to both <u>Ln</u> and <u>Log</u> . Example: "1ArcSin" => 90
Hyp	Alt+y	<u>Hyperbolic</u> . Tells Judy's TenKey that the next trigonometric function should perform the hyperbolic version. Example: "1Sinh" => 1.175

Finance Bar

The finance bar supports the following functions (see also [Using Financial Functions](#)):

Button	Key	Function
<u>Loan</u>	Shift+l	<u>Loan</u> . Brings up a dialog to help you calculate the total loan amount you can afford (given a desired monthly payment).
<u>Pmt</u>	Shift+p	<u>Payment</u> . Brings up a dialog to help you calculate monthly payments for most loans.
<u>Inv</u>	Shift+i	<u>Investment</u> . Brings up a dialog to help you calculate the future value of your investment.
<u>Fund</u>	Shift+f	<u>Retirement Fund</u> . Brings up a dialog to help you calculate the money you will need to guarantee a certain level of income during your retirement.
<u>Dflt</u>	Shift+d	<u>Deflation</u> . Brings up a dialog to help you calculate the future value of your money in today's dollars (useful when evaluating the results of the Invest function, or deciding your desired monthly income for the Fund function).

Loan Dialog

The Loan Dialog Box can calculate either the total amount of a loan or the payments on that loan.

To calculate the total amount of a loan:

The screenshot shows a dialog box titled "Loan Calculator". Inside, there is a "Calculate" section with two radio buttons: "Loan Amount" (selected) and "Monthly Payment". Below these are three input fields: "Duration (Years)" with the value "30", "Interest Rate" with the value "9%", and "Monthly Payment" with the value "805". There is also a checked checkbox for "Record on Tape". At the bottom of the dialog are three buttons: "Calculate", "Close", and "Help". A label "Target" with a line pointing to the "Loan Amount" radio button is on the left side of the dialog.

- 1) Make sure that the "Loan Amount" target radio button is selected.
- 2) In the labeled fields, enter the monthly payment, the duration of the loan (in years), and the annual interest rate (in percent).
- 3) Press the <Calculate> button and read the result in the "Loan Amount" field.

For example, an \$805 monthly payment at a 9% annual interest rate for 30 years implies an original loan of \$100,000.

To calculate the monthly payment for a loan:

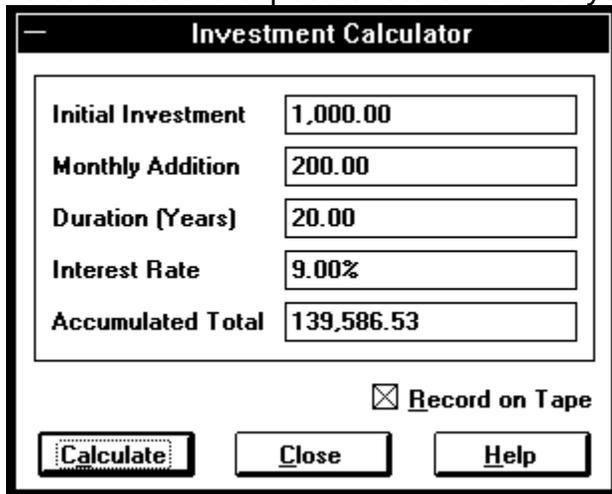
- 1) Make sure that the "Monthly Payment" target radio button is selected.
- 2) In the labeled fields, enter the total loan amount, the duration of the loan (in years), and the annual interest rate (in percent).
- 3) Press the <Calculate> button and read the result in the "Monthly Payment" field.

For example, a \$100,000 loan at a 9% annual interest rate for 30 years requires a monthly payment of \$805.

See also [Using Financial Functions](#).

Investment Dialog

To calculate the expected future worth of your investment:



The screenshot shows a dialog box titled "Investment Calculator". It contains five input fields with the following values: Initial Investment (1,000.00), Monthly Addition (200.00), Duration (Years) (20.00), Interest Rate (9.00%), and Accumulated Total (139,586.53). Below the fields is a checked checkbox labeled "Record on Tape". At the bottom are three buttons: "Calculate", "Close", and "Help".

Field	Value
Initial Investment	1,000.00
Monthly Addition	200.00
Duration (Years)	20.00
Interest Rate	9.00%
Accumulated Total	139,586.53

Record on Tape

Buttons: Calculate, Close, Help

- 1) Enter the amount of your initial investment (can be 0).
- 2) Enter the amount you plan to add to this investment on a monthly basis (can be 0).
- 3) Enter the number of years you plan to have this investment.
- 4) Enter the annual interest rate you expect to accrue.
- 5) Press the <Calculate> button and read the expected future worth of your investment in the "Accumulated Total" field.

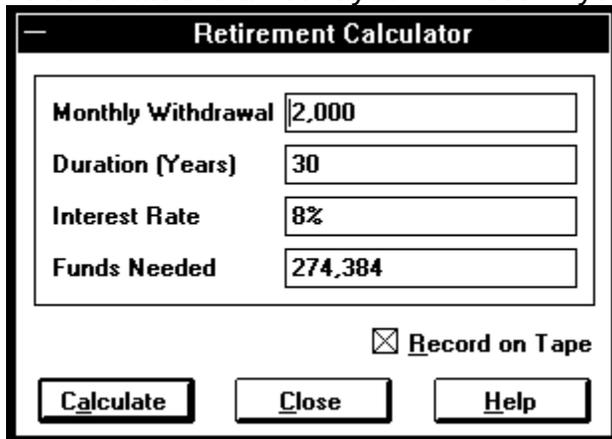
For example, starting with \$1,000 and adding another \$200 per month, earning an average return of 9%, you will have \$139,587 at the end of 20 years.

Note that the "Accumulated Total" does not take into account the effect of inflation.

See also Using Financial Functions.

Retirement Dialog

To calculate the amount you will need in your retirement fund:



The image shows a dialog box titled "Retirement Calculator". It contains four input fields: "Monthly Withdrawal" with the value "2,000", "Duration (Years)" with the value "30", "Interest Rate" with the value "8%", and "Funds Needed" with the value "274,384". Below the input fields is a checked checkbox labeled "Record on Tape". At the bottom of the dialog are three buttons: "Calculate", "Close", and "Help".

- 1) Enter the monthly withdrawal you would like to make.
- 2) Enter the number of years you would like to continue making withdrawals in the "Duration" field.
- 3) Enter the annual interest rate you expect to accrue on your remaining funds.
- 4) Press the <Calculate> button and read the required retirement fund in the "Funds Needed" field.

For example, if you withdraw \$2,000 a month, earn an average return of 9%, and have a retirement lasting 20 years, you will need \$223,957 at the start of your retirement.

Note that this analysis does not consider the effect of taxes. Also note that inflation will likely reduce the purchasing power of your monthly withdrawals over time (you may want to use the [Inflation Dialog](#) to calculate a more realistic monthly withdrawal).

See also [Using Financial Functions](#).

Inflation Dialog

The Inflation Dialog Box can calculate either the effective purchasing power of a future, inflated amount (present value), or it can calculate the future, inflated dollars that will be necessary to match the purchasing power of an amount today (future value).

To calculate a future, inflated amount:

The screenshot shows a window titled "Inflation Calculator". Inside, there is a section labeled "Calculate" with two radio buttons: "Initial Amount" (unselected) and "Final Amount" (selected). Below these are four input fields: "Initial Amount" with the value "10,000", "Final Amount" with the value "21,911", "Duration (Years)" with the value "20", and "Inflation Rate" with the value "4%". Below the input fields is a checked checkbox labeled "Record on Tape". At the bottom of the window are three buttons: "Calculate", "Close", and "Help". A line labeled "Target" points to the "Final Amount" radio button.

- 1) Make sure that the "Final Amount" target radio button is selected.
- 2) Enter the current amount in the "Initial Amount" field.
- 3) Enter the number of years into the future you wish to consider, placing this number in the "Duration" field.
- 4) Enter the expected annual inflation rate.
- 5) Press the <Calculate> button and in the "Final Amount" field you will find the future, inflated amount that will be necessary to match the purchasing power of the initial amount.

For example, assuming a 4% inflation rate, 20 years from now the current purchasing power of \$10,000 will be expressed as \$21,911.

To calculate effective purchasing power of a future, inflated amount (in other words, to deflate it):

- 1) Make sure that the "Initial Amount" target radio button is selected.
- 2) Enter the future, inflated amount in the "Final Amount" field.
- 3) Enter the number of years into the future you wish to consider, placing this number in the "Duration" field.

- 4) Enter the expected annual inflation rate.
- 5) Press the <Calculate> button and in the "Initial Amount" field you will find the effective purchasing power of the future amount.

For example, assuming a 4% inflation rate, 20 years from now the effective purchasing power of \$10,000 will be \$4,564.

See also [Using Financial Functions](#).

Number Pad

Provides the basic means of entering and manipulating numbers. See also Display Components

Button	Key	Function
C	Esc	<u>Clear</u> . Stops any calculation in progress, displays 0 on the entry line, and appends a <u>break</u> line to the tape.
CE	Shift+Back	<u>Clear Entry</u> . Erases any number currently displayed in the active entry, but does not interrupt any calculation in progress. For example, if you are adding a long series of numbers and mistype one, using the <CE> button will allow you to retype that number without losing your place.
<-	Back	<u>Backspace</u> . Erases the last digit of the number currently displayed on the entry line.
%	p,%	<u>Percent</u> . Converts a number to a percentage. Mathematicians know that a number expressed as a percentage is equivalent to that number divided by 100, and Judy's TenKey expresses the results accordingly. Example: "50%" => 0.50 (50/100=0.50). <u>Tenkey Syntax</u> : Pressing the '+' or '-' key after the '%' yields special results ('+%','-%').
+/-	~	<u>Sign</u> . Changes the sign of the number currently displayed on the entry line, changing a positive number to a negative and vice versa. Example: "34s" => -34 "-34s" => 34
+	+	<u>Add</u> . <u>Calculator Syntax</u> : Adds the next number to the current subtotal. Example: "5+2=" => 7. <u>Tenkey Syntax</u> : Enters the current number as a positive number in the running subtotal. Example: "5+2+" => 7. <u>RPN Syntax</u> : Adds the current entry to the previous subtotal. Example: "5=2+" => 7.
-	-	<u>Subtract</u> . <u>Calculator Syntax</u> : Subtracts the next number from the current subtotal. Example: "5-2=" => 3.

Tenkey Syntax: Enters the current number as a negative number in the running subtotal. Example: "5-2+" => -3.

RPN Syntax: Subtracts the current entry from the previous subtotal. Example: "5=2-" => 3.

* * Multiply.

Calculator & Tenkey Syntax: Multiplies the current number by the next entry. Example: "5*2=" => 10.

RPN Syntax: Multiplies the current entry by the previous subtotal. Example: "6=2*" => 12.

/ / Divide.

Calculator & Tenkey Syntax: Divides the current subtotal by the next entry. Example: "6/2=" => 3.

RPN Syntax: Divides the previous subtotal by the current entry. Example: "6=2/" => 3.

0-9 0-9 Digit. Causes the digit to appear in the entry line. If currently editing a number, appends the digit to the end; otherwise, it starts a new number from scratch.

. . Decimal. Causes a decimal point to appear in the entry line. If currently editing a number, appends the decimal point to the end; otherwise, it starts a new number from scratch ("0."). Note that this may appear as a comma (",") if you make use of Windows international settings.

= Enter Total. Calculates and records the current result in the tape.

Calculator Syntax: Indicates the end of the calculation. Displays and records final result. Example: "5-2+3=" => 6.

Tenkey Syntax: Indicates the end of the calculation. Displays final result and clears cache. Example: "5-2+3=" => -6. When used in a subexpression, does not clear cache (e.g., 2*3=6).

RPN Syntax: Pushes the current entry onto the stack.

S Ctrl+Enter Subtotal. Appends the current subtotal to the bottom of the history tape.

