

CHIWRITER TUTORIAL

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1. Cursor Movement

The Cursor keys [Left], [Right], [Up] and [Down] in the cursor keypad move the cursor one unit in the desired direction. [PgUp] and [PgDn] scroll one screen up and down, [Ctrl-Home] and [Ctrl-End] move to the beginning and end of the document. [Ctrl-Left] and [Ctrl-Right] move a word left or right. [Home] and [End] move to the left and right screen margin, with intermediate stops at the first or last letter of the current line (since those are the spots at which you are most likely to continue editing). *Try them now and remember to hit [Ctrl-Home] to return here!*

Use [PgDn] in the following to page through this tutorial! If you want to quit the tutorial, hit [Ctrl-End] for directions.

To move the cursor to the next or previous occurrence of a character, hit [Grey +] or [Grey -], followed by that character. For example, [Grey +]a moves the cursor to the next a in any font, [Grey -] [F3]b moves to the previous Italic *b* (since, as you will see later, [F3] is the *font* key for the Italic font). We call this the *quick search* feature. *Try it out now!*

[Grey +] [Return] moves to the next hard return (i.e. to the end of the paragraph), and [Grey -] [PgUp] moves backwards to the top of the page.

Hitting the quick search key twice (e.g. [Grey +][Grey +]) repeats the last search.

Use [Ctrl-G] to go to a certain page. You will be prompted for a page number.

2. Inserting Text

To insert text, move the cursor anywhere on the screen and start typing. Use the [Backspace] key to delete the character before the cursor, the [Del] key to delete the character under the cursor. [Ins] toggles between "Insert mode" and "Overwrite mode". (Check the status line for an **INS** indicator which is present in insert mode and missing in overwrite mode). *Move the cursor to the * on the next line and type your name!*

*

3. Font Change

Up to twenty fonts are available to you. Among them are:

F1: Standard F3: *Italic* F4: **Bold**

F7: Greek ($\alpha\beta\Gamma\Delta$) F8: Linedraw ($\rightarrow \perp$) F9: Math I ($\partial\leq\div$)

To change the font, hit the desired function key on the left of the keyboard *twice*. Note that the indicator **F1:STANDARD** in the status line changes to display the name and number of the new font. *Move the cursor behind the next * and type your name in Italics and Greek! Switch back to font 1 when you are done.*

*

If you hit the function key just *once*, only the next character is taken from the new font and the editor reverts to the old font. This is very useful for typing scientific text which frequently requires typing just one character in a special font.

For example, consider the following sentence:

Let $0 < \varepsilon \leq 1$ be a real number.

The ε is typed as [F7]e and the \leq as [F9]<. Afterwards, the program automatically reverts to font 1. *Reproduce the sentence below!*

*

With symbolic fonts like Greek and Math I it is not easy to remember which key encodes which symbol. Hitting a font key and then [Alt-H] ("Help") displays a *keyboard chart* on the screen, showing the location of all symbols on the keyboard. You can cycle through the charts of various fonts by hitting the appropriate font keys, or insert a character by hitting the associated key, or just hit [Esc] to return to your document. *Hit [F7][Alt-H] to see the keyboard assignment for the Greek font!*

4. The Anatomy of a Line

Each document consists of a sequence of lines. Each line ends in a marker which is displayed at the right of the screen. There are two types of markers:

A hollow soft return marker \rightarrow

A solid hard return marker \rightarrow

Notice that different lines can have different thicknesses, depending on the number of super- and subscript levels in it. For example, the following line has 4 superscripts and 2 subscripts:

A Line can have several levels of superscripts and subscripts.

The dashes in the return marker column indicate the sizes of the lines. Even single-spaced lines can hold one superscript level which overlaps with the previous line.

5. Super- and Subscripts

*Move the cursor to the next * and type H [Ctrl-PgDn] 2 [Ctrl-PgUp] 0.*

*

Subscripts and superscripts can be inserted in any line. The return marker at the end of every line is at the “base level” of the line. The [Ctrl-PgUp] and [Ctrl-PgDn] keys move the cursor one *level* up or down (rather than one line at a time). At the top or bottom of the line, a super- or subscript row is automatically added.

6. Adding and Zapping Rows

If you type a formula or a table, you will need several levels of superscripts and subscripts. When the cursor reaches the top or bottom of a line, a [Ctrl-PgUp] and [Ctrl-PgDn] automatically insert a blank row. If you want to insert a row in the middle of a line, use [Ctrl-A] (“Add”). The row is added below the cursor. *Move the cursor onto the next * and add a few levels with [Ctrl-PgUp], [Ctrl-PgDn] and [Ctrl-A].*

*

Note that the section headings in this tutorial are surrounded by blank superscript and subscript rows. This was done with [Ctrl-A] as well.

To remove a level, move the cursor into it and hit [Ctrl-Z] (“Zap”). *Move the cursor into the formula below, move the cursor to different levels with [Ctrl-PgUp] and [Ctrl-PgDn] and zap rows to your heart’s content. Then delete the entire line by hitting [Ctrl-Backspace].*

$$J_n(x) = \frac{(-i)^n}{\pi} \int_0^{\pi} e^{ix \cos \phi} \cos n\phi \, d\phi$$

Before writing a formula, table or diagram, most people prefer to first create a large number of super- and subscript levels to obtain a large working area. Unused rows can later be removed with [Ctrl-Z].

7. Synchronized and Unsynchronized Rows

If you remember your junior high school algebra, you will notice that the following formula should have a “2a” in the denominator, not a “23a”. *Make sure that insert mode is on. Move the cursor into the formula. Move the cursor onto the 3 and hit [Del] to delete it.*

$$x_{1,2} = \frac{-b \pm \sqrt{b^2 - 4ac}}{23a}$$

*That didn’t work, did it? The [Del] operation deleted the contents of all columns. Let’s try this again. Move the cursor into the next formula and hit the [Grey *] key. Notice that the **SYN** indicator in the status line disappeared and the cursor changed*

shape. Move the cursor onto the 3 and hit [Del].

NOTE: To move the cursor "on" to the 3 (for unsynchronized mode) the cursor must be slightly beneath the 3 - not on the top half.

$$x_{1,2} = \frac{-b \pm \sqrt{b^2 - 4ac}}{23a}$$

The **SYN** stands for "synchronized". In synchronized mode, insertions and deletions affect the entire line, in unsynchronized mode they affect only the current row. *Go back to the formula above, move the cursor before the 2 in the denominator and insert a few spaces to center the denominator. Hit [Grey *] again to reactivate synchronized mode.*

In unsynchronized mode, the cursor keys are "slowed down": The [Up] and [Down] keys move the cursor a row at a time but do not insert blank rows, and the [PgUp] and [PgDn] keys move a line at a time. (The other cursor keys are unchanged). You should use unsynchronized mode only for editing formulas and diagrams.

Did you notice that the cursor is half the usual size in unsynchronized mode? If the cursor is strangely small and slow, you are in unsynch mode, and you should hit [Grey *] before editing regular text.

Here is an exercise in editing formulas: Duplicate the formula

$$\sum_{k=1}^n k^2 = \frac{n(n+1)(2n+1)}{6}$$

*(The \sum is [F9] S, all others are in font 1.) Move the cursor behind the next * and turn insert and synchronization mode off. Insert a few levels above and below the base row, and write the formula.*

8. Word Wrap and Formatting

If you type text, don't use the [Return] key to end a line. When you go past the right margin, the last word will be moved automatically on a new line. The old line is terminated by a soft return. If justification mode is on (**JST** in the status line), the old line is automatically right justified. Use [Ctrl-J] to toggle justification mode if you prefer a ragged right margin. At the end of every paragraph, you should use the [Return] key to insert a hard return. (In unsynchronized mode, word wrap is turned off, which is just as well since you probably don't want your formulas to get wrapped around several lines.)

To format a paragraph, move the cursor into its first line. and hit [Ctrl-F]. If justification mode is on, the editor produces a flush right margin by inserting soft spaces (the ones that don't look like small dots), otherwise a ragged right margin. The formatting stops at the next hard return. *Move the cursor to the*

*next * and follow the instructions above it!*

Write a sentence that is longer than one line to see the word wrap. Then move the cursor to the first word of this paragraph and hit [Ctrl-F]!

If you want *hyphenation* during formatting, set the *hyphen threshold* with the "Layout hYphen" command to, say, 10. That way, if a line would contain more than 10 soft spaces, you are prompted to insert a hyphen. This feature is especially useful for languages with long words, e.g. German.

9. Changing the Margins, Tab Stops and Spacing.

[Ctrl-[]], [Ctrl-]] change the left and right margin to the cursor column. [Ctrl-T] toggles the tab stop at the cursor column, i.e. creates a tab stop if there was none before and removes it otherwise. There is a margin and tab stop indicator in the status line. The maximum right margin is 78. Try out [Ctrl-[]], [Ctrl-]] and [Ctrl-T]! *Observe the effect on the status line! Be sure to reset the left margin to 1 and the right margin to 66 when you are done.*

10. Pagination

The program automatically computes page breaks. You may have noticed some of them in this tutorial already--they show up as dotted lines across the screen. If you want to force a page break (e.g. at the end of a chapter), hit [Ctrl-B] ("Break Page"). Hitting [Ctrl-B] again removes the page break. *Move the cursor to the next * and hit [Ctrl-B]. Hit [Ctrl-B] again to remove the page break!*

Note that the hard page breaks inserted by you show up as solid lines across the screen whereas the soft page breaks created by the computer are dotted.

Sometimes you need to inhibit a page break at a certain location, e.g. directly after a section heading. [Ctrl-I] toggles the line containing the cursor in and out of "Inhibit page break" mode. When in "Inhibit page break" mode, a page break will never be placed below it by the pagination routine. This mode is indicated by a dotted separator dash below the return marker. Try it out: *Move the cursor just above a (dotted) soft page break and hit [Ctrl-I]. The page break will move one line up.*

11. Splitting and Merging Lines. Deleting Lines. Centering Lines

To split a line in two, move the cursor at the desired location and enter a hard return with the [Return] key. To merge two successive lines, move the cursor to the last column (use the [End] key a few times!), and delete the marker using the [Del] key. *Move the cursor to the next * and hit [Return]. Then delete the newly created hard return!*

*Split this line * and merge it back together!*

Hitting [Ctrl-Backspace] deletes the line containing the cursor. Hitting [Ctrl-C] centers it between the margins. Hitting [Ctrl-M] moves it to the right margin.

Delete me by hitting [Ctrl-Backspace]!

Center me by hitting [Ctrl-C]!

Move me to the right by hitting [Ctrl-M]!

12. The Menu

Most of the commands you have used so far were entered as [Ctrl-...] key combinations. This is fast and convenient for frequently used commands, and we have tried to use logical key assignments (like [Ctrl-F] for format, [Ctrl-W] to delete a word etc.) Other commands are accessible through the menu on the bottom of the screen, and some of the control key commands can also be accessed through the menu (in case you forgot the control key). There are two ways to call a menu command.

Method 1. Hit [Esc]. Then a "highlight bar" appears in the menu. It can be moved with the [Left] and [Right] arrow keys. To select an option, either move the highlight bar on it and hit [Return], or enter the first Capital letter in the option name.

Method 2. Hit [Alt] and the first Capital letter in the option name.

Most menus branch off to submenus, and you can select sub-options by the same method. Once you are inside the menu, hitting [Esc] gets you back into edit mode. You can browse through the menu to find out what options are available and hit [Esc] at any time without having to select anything.

The [Up] and [Down] key are for browsing: [Down] gets one level deeper (just as [Return]), but it never accepts a command at a "leaf" of the menu tree. [Up] undoes the last selection and moves one level further back to the "root" of the menu tree. (Computer trees are funny--the root is on top and the leaves are on the bottom.)

When you highlight a menu branch, the branches emanating from it are displayed in the line below the menu. If you are at a leaf, an explanation of the command is displayed instead. (Some commands offer you a list of choices that look like a continuation of the menu, but they aren't. If a choice list appears, you are already executing a command. The [Up] key doesn't go back into the menu. Use [Esc] to cancel the command.)

To get on-line help on a command, move the highlight bar on it and hit [Alt-H].

Try it out! Hit [Esc] L to see the options in the Layout menu. Browse through the sub-options. Try out the on-line help! Hit [Esc] when you are done.

When you are more experienced, you can turn the menu off. That gives you 5 additional rows of screen “real estate” and makes the program run a little quicker. (When you hit [Esc], the menu temporarily pops back onto the screen.)

13. Highlighting

For certain ChiWriter commands, you have to specify a block of text by *highlighting* it. To highlight a block, move the cursor to the beginning of it and *mark* it by hitting [Alt-M]. Then move the cursor to the other end. The text between the marked position and the cursor is highlighted.

Note that the menu on the bottom of the screen has changed. The options available to you now include cutting out the highlighted text or changing its font or spacing. To change the font of each character in the highlighted area from any font to any other font, select [Alt-F] (“Font change”), and use the font keys to specify the change from which font to which font. (If you want to change from any font to the new font, use [Return]). *Move the cursor to the next * and follow the instructions.*

** Hit [Alt-M], move the cursor to the end of this block and change all Italic characters in this sentence to Bold: Select [Alt-F] and specify from [F3] to [F4].*

If you ever invoke highlighting by accident, select [Alt-E] or [Esc] E (“End”) to cancel it.

14. Cut and Paste

To delete a block of text, move the cursor to the beginning and mark it by hitting [Alt-M]. Then move the cursor to the end of the text and hit [Alt-C] (“Cut”). The highlighted area is cut out and placed into a buffer. To insert the buffer contents anywhere into the text, move the cursor to the insert location and hit [Ctrl-P] (“Paste”). If you want to copy a block into the buffer without deleting it, highlight it and hit [Alt-D] (“Duplicate”). *Cut out the first part of the sentence below and paste it behind the second part!*

** Mark here and cut until here * and paste here:*

Keep in mind that the paste command is [Ctrl-P]. [Alt-P] selects the **Print** menu option. You can also execute the paste command from the **Screen** menu option ([Alt-S] P), but it takes an additional keystroke.

If you cut and paste in unsynchronized mode, you don’t highlight a linear sequence of text, but a rectangular area. This is useful for moving parts around in a formula or diagram.

When pasting the rectangular area (still in unsynch mode), its top

left corner gets pasted at the cursor position. However, it would be pretty difficult to correctly position the rectangle without seeing its contents. Therefore, after hitting [Ctrl-P], the area to be pasted is tentatively displayed on the screen, and you can *position* it using the cursor keys. The text in the background shines through the area image, sometimes creating interesting interference patterns. To *drop* the area, hit [Return], and the image is superimposed on the existing text. (As usual, [Esc] cancels the command.)

*Try it out in the following formula: Hit [Grey *] to get into unsynchronized mode and highlight the $e^{ix\cos\phi}$. Cut it out and paste it 2 rows higher up! Hit [Grey *] again when you are done!*

$$J_n(x) = \frac{(-i)^n}{\pi} \int_0^\pi e^{ix \cos \phi} \cos n\phi \, d\phi$$

15. Search and Replace

To search for a phrase in the document, hit [Ctrl-S] and enter the search pattern. Hit [Return] to start the search. Hit [Esc] to cancel the command if you change your mind. [Ctrl-L] repeats the last search. *Try it out: Move the cursor here * and hit [Ctrl-S]the[Return] to move the cursor to the next the. Hit [Ctrl-L] to repeat the last search and find subsequent thes.*

To search for a phrase and replace it with another one, use the [Ctrl-R] command and enter search pattern and replacement text when prompted. You can change fonts in the pattern and the replacement text by using the [F..] keys.

The search command [Ctrl-S] has toggles for case insensitive and font insensitive matching. That means, you can make "this" match "This" and "this". Also, the search and the search-and-replace commands look for the search string in the footnotes as it scans through the document.

16. Spell Checking

To start the spell checker, hit [Alt-C][Alt-C] (menu option "spellChk Check spelling". The spell checker loads a dictionary and then highlights suspect words. You can pick one of the suggested replacements by selecting it with the cursor keys and hitting [Return].

Or, you can **ignore** the word this time only. Next time it is encountered it is flagged again.

Or, you can **accept** the word as is, and the spell checker won't complain when it sees the word again.

Or, you can **write** the word to an auxiliary dictionary. That automatically accepts it as well. Read the manual for details on auxiliary dictionary management.

Or, you can **cancel** the spell checker and fix the word by hand.

To cancel the spell checker while it is busy, hit [Esc].

** Try it out now. Move the cursor on the beginning of this line and hit [Alt-C][Alt-C]. Here we misspelled a word on purpose. Fix it. Hit [Esc] to stop further checking.*

17. The FULL Indicator

The file you are editing is stored in the computer memory. You should save it occasionally, especially if you have problems with the electrical power. Also, since the memory size is limited, you should take care that your file fits inside. If you run out of memory, the editor will refuse to execute any more commands that require memory. You can, of course, still save your document.

However, it is a good idea to inspect the **FULL** indicator in the status line periodically. If it is in the 90% range, look for a good point to break up the current document into two parts. *Check the FULL indicator now!*

18. Key Sequences

Sequences of keystrokes can be stored, given a name and replayed later by ChiWriter. To define a key sequence, hit [Ctrl-D] and enter a name. Then enter the keystrokes. To end the definition, hit [Ctrl-D] again.

*Let us define a key sequence that replays your name. Move the cursor onto the next *. Hit [Ctrl-D]. Let us call the sequence ME. Hit ME [Return] and type Harry Hacker or whatever your name is and end the definition with [Ctrl-D].*

Did you note that during the definition of the key sequence the status line contained an indicator **DF**? To replay a key sequence, hit [Ctrl-K], enter the name of the sequence and hit [Return]. *Hit [Ctrl-K] ME [Return] to replay your name. Now you can insert your name hundreds of times into a document with just a few keystrokes.*

For up to 36 key sequences, there is a further shortcut. You can select [Alt-0] ... [Alt-9] as well as [Alt-A] ... [Alt-Z] as names when defining a sequence, and then replay by hitting that key again (without hitting [Ctrl-K]).

When you leave ChiWriter, your key sequences are lost. If you want to save them, use the "Environ Key seq Save" menu option.

If you hit [Ctrl-K] or [Ctrl-D] by accident, hit [Esc] to cancel the command.

ChiWriter comes supplied with a number of useful key sequences for mathematics:

Square brackets	$[1 \left[[2 \left[[3 \left[\begin{matrix} 11 \\ 12 \end{matrix} \right] 13 \right] 12 \right] 13 \right]$
Parentheses	$(1 \left((2 \left((3 \left(\begin{matrix})1 \\)2 \end{matrix} \right))3 \right))2 \right))3 \right)$
Braces	$\{1 \left\{ \{2 \left\{ \{3 \left\{ \begin{matrix} \}1 \\ \}2 \end{matrix} \right\} \}3 \right\} \}2 \right\} \}3 \right\}$
Summation signs	SUM1 \sum SUM2 \sum SUM3 \sum
Integral signs	INT1 \int INT2 \int OINT \oint
Square roots	ROOT1 $\sqrt{\quad}$ ROOT2 $\sqrt{\quad}$

Try it out: Move the cursor to the next * and type [Ctrl-K] ROOT2 [Return]! Hit [Ctrl-K] {1 [Return]!

*

Another set of convenient key sequences centers a formula and prepares an equation number behind it. EQU1 ... EQU4 perform this task, leaving 1 ... 4 characters for the number. For example, center the following equation and give it the number 123 by typing [Ctrl-K]EQU3[Return]123!

$$J_n(x) = \frac{(-i)^n}{\pi} \int_0^{\pi} e^{ix \cos \phi} \cos n\phi \, d\phi$$

19. Line and Box Drawing

ChiWriter has an automated line/box mode that makes drawing lines, arrows \longrightarrow and boxes a snap. Here is how to do it: Move the cursor to the top left corner of the box or end point of a line. (You may need to use [Ctrl-PgUp/Dn] or use [Grey *] to switch to unsynch.) Then hit [Ctrl-X]. Move the cursor to the other corner. You'll see the box or line expanding. Hit [>] to toggle arrow tips on/off or hit [-] to cycle between solid — , double = , thick = or dotted \cdots line styles.

Draw an arrow from here \longrightarrow to here! Box me in!

Like this:

Draw an arrow from here —————→ to here!

Box me in!

20. How to Print. Headers and Footers. Print Options

To print a document, select "Print" from the menu, turn your printer on and select "Go". You can hit any key to stop the printout. *Try it out now! Hit [Esc] P G.*

There are three print qualities: Draft, Letter quality and Special. The draft mode is intended for fast printing with little regard for beauty. Letter quality is best for presentable output, but it can be very slow if your printer doesn't have a built-in letter quality font. For those printers, a special mode is supplied which prints an "emphasized" draft font.

There are three pitches: Pica (10 pitch), Elite (12 pitch) and proportional. Not all printers support all combinations of pitches and print qualities.

Different headers and footers can be selected for even and odd pages and the first nine pages of any document. For example, you may want to have page numbers in the left corner on even pages and in the right corner on odd pages, except on page 1. Edit the headers and footers through the "Layout" menu. To suppress page numbers, select "Delete Footer Default".

Look at the "Print Options" menu to print out part of a document.

21. Reading Documents

To read a document from disk, select "Read Document" from the menu. You will be presented with a list of ChiWriter files on the disk, and the first name is highlighted. The [Up], [Down], [Left] and [Right] arrow keys move the highlight bar. [Return] accepts a selection. If the file you want is not listed, enter its name manually. (The name you enter can contain drive or path specifiers.). Hitting [Esc] cancels the disk command. *Select [Esc] R D, confirm that you want to abandon the current document and reload the TUTORIAL.CHI file by moving the highlight bar onto it and hitting [Return]. Then scroll back to this section!*

22. Writing Documents

We include this section for completeness. You should *not* save this tutorial file since you probably made some changes to it that shouldn't be preserved for posterity. However, usually you *do* want to save your document on disk. Select the "Write Document" option from the menu, and your document will be saved on disk. (The old version will be renamed with the extension .BAK) *Again, do not save this document now.*

23. How To Quit

To end the edit session, hit [Alt-Q] ("Quit"). If you made no changes to the document since it was last saved, ChiWriter

terminates and you return to DOS. If you did make changes that are not saved on disk, you will be asked to confirm whether you want to abandon the current document before leaving ChiWriter. *Since you do not want to save the changes you just made to this tutorial, hit [Esc] Q Y to quit.*