Introductory Tutorial for First-time WinTriangle

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1. Introduction

You should read this document before using Triangle. Instructions for installing and starting Triangle are given in the help file. 1.1 Purpose

Triangle allows users to create documents with many special math and science characters, and in particular, to write compact linear math equations. Before beginning, you should review the math and science symbols available in the readable fonts files. You can do this by typing ALT-i, Enter, the hot key combination for entering the character insert menu item in Triangle. The insert character box consists of the Readable Fonts and Characters list, a lookup search tool and a preview window to display the character currently selected.

The first font in the list is Times New Roman. If you highlight it and arrow down, the names of the available fonts will be spoken aloud, followed by the hot key combinations for each font.

Scroll down and select the Symbol font from the list. As in the Readable Fonts box, highlighting characters in the list and pressing arrow down will step through the available options, speaking them aloud in turn.

Arrow down to select the absolute symbol (or type "abs" in the lookup box). You will hear "absolute" followed by "ALT vertical bar". If you press enter while this item is highlighted, an absolute value bar will be inserted into your document. You can also insert an absolute value bar by using the hot key combination ALT-g followed by the vertical bar (SHIFT Backslash). You can select other characters in the same way. All characters in the symbol font can be called with hot keys using either ALT-g or ALT-a. I recommend you browse through the entire list to become familiar with the characters available. You may also wish to explore the list of characters in the markup font, MT Extra. Though the math symbols in this font are highly specialized, the markup symbols are necessary for many basic applications.

The rest of this tutorial is devoted to learning the most Triangle features that will be commonly used in simple algebra.

1.2 Getting Started

If you know how to use Notepad, Wordpad or MS Word, you already know the basic way that Windows word processors work and should have no trouble reading text in Triangle up to this point. Up, down, left and right arrows, as well as Ctrl-left and Ctrl-right move the cursor as in any other word processor or screen reader. When the cursor reaches a new line in Triangle, the line is spoken aloud.

The File menu contains the same items as standard word processors, and these items (such as Open, Save and Save As) operate in the usual way.

There are relatively few specific speech commands in Triangle. The most important is the read-line function, Ctrl-r. Hold

down the Control key and press r now to hear the current line spoken aloud. Another specific Triangle function is ALT-right or left arrows. Use these to hear each letter pronounced in the international phonetic alphabet. You may silence speech at any time by pressing the SHIFT key. 2. Superscripts and Subscripts

Most people first encounter superscripts in exponential math. The simple algebraic expression x squared is written by placing a superscript 2 to the right of the x, or x2. A superscript can be created in several ways. The easiest way is to type CTRL-Shift-+ followed by the character(s) to be superscripted. Windows is unpredictable about exiting superscript and subscript mode, however, so it is good practice to type the character following the superscript before creating the superscript itself. Practice now by typing x followed by a SPACE, cursor back and type CTRL-Shift-+, 2.

Most people first encounter subscripts in introductory chemistry where subscripts are used to show the number of atoms of the same type in a molecule. For example, the molecular formula for water is H2O. The easiest way to subscript character(s) is to type CTRL-+ followed by the character(s) to be subscripted. To write H2O, type HO, cursor back and type CTRL-+, 2.

Note that CTRL-Shift-+ and CTRL-+ toggle between super/subscript mode and normal mode.

Subscripts and superscripts can appear on the left side of symbols. For example, radicals in algebra often have a superscripted number to the left of the radical symbol to indicate nth root. The cube root of 7 is written 3Ö7 while the twelfth root of 2 is written 12Ö2. In Triangle, these superscripts can be expressed with the left superscript indicator as 3Ö7 and (12)Ö2. There are also indicators for regular superscripts and subscripts. x2 can be correctly written x2, but it is generally preferrable to use real subscripts and superscripts. When writing complex expressions containing sub/superscripts within a sub/superscript one must use indicator symbols. 3. Fractions

Simple fractions containing one character only in both the numerator and the denominator are expressed in Triangle using the "over" (/) symbol. The hot key for this common symbol is ALT-/. To write 1/2, for example, type 1 ALT-/ 2.

More complicated fractions with multiple terms are more difficult to express. For example, 1/2 is clearly one half, but the term 1/2x is less clear. Does it mean 1 divided by 2x or 1/2 times x? And does 11/2 represent 11 divided by 2, or 1 times 1/2? In practice, parentheses are used to establish certainty with fractions. 1 over 2x becomes 1/(2x) and 11 over 2 becomes (11)/2. In Triangle, however, complex fractions are represented using fraction enclosures. For example, The expression (11)/2 is written 112. There are a number of ways to obtain these enclosures in Triangle. The easiest way is to use hot keys. CTRL-T,, is the hot key for , CTRL-T, is for , and CTRL-T,F. is for . The hot key CTRL-T,N, produces all three enclosures at once. The cursor is placed in the numerator position (between the and). You can cursor between the enclosures using the arrow keys. To write (11)/2, then, type CTRL-T,N, 11, arrow right once then type 2. 4. Greek Letters

Greek letters are ubiquitous in almost all levels of math and science. For example, the symbol Pi (p) is used in basic geometry to find the area of a circle in the equation a=pr2. In Triangle, many of the Greek letters can be obtained through intuitive hot keys. Pi (p) is the Greek equivalent of the letter p, so it is inserted with the hot key combination ALT-g, p. Many other Greek letters can be inserted by the same logic: for alpha (a), type ALT-g, a; for beta (b), type ALT-g, b. Some hot key combinations are less intuitive. Theta (q), for example, is inserted by typing ALT-g, q. You can lookup the hot key combinations for every letter in the insert character list. 5. Creating Equations5.1 Creating Notes

Entering mathematical equations in any editor can be time consuming and laborious. To make this process easier, Triangle is equipped with feature called notes that allows the user to save complicated equations for easy recall at a later date. For example, if a chemist is writing a paper on sucrose, molecular formula C12H22O11, they can type the formula once, save it as a note, and recall it for every subsequent use. Notes can be saved either permanently and temporarily. Permanent notes are remembered by Triangle even after the program has been closed and reloaded. Temporary notes are abandoned every time Triangle is closed.

To create a note, highlight the text you wish to save. In the Edit menu, select "copy notes" (or type ALT-c). A box will open. In the name field, type a name for your note. For example, if you are saving the molecular formula for sucrose C12H22O11 you could type "sucrose" in this field. You can also choose to make the note temporary or permanent, the default being temporary.

To recall notes at a later date, select "paste notes" from the Edit menu (or type ALT-p). Select the note you wish to insert from the list of available notes and click OK. 5.2 Using Macros

Several macros for math tools, functions and symbols are included in Triangle, and allow the user to type some special math and Triangle functions with a simple hotkey combination. To view the list of available macros, select "Macros" from the Tools menu. A box will open with the complete macro list with relevant hotkeys, organized by type.

For example, the entry for the plus minus sign ± is listed under the "Triangle Math Function Toolbar Controls" heading. The hotkey is shown to be ALT-M,L. 6. Conclusion

Readers with applications not covered in this tutorial are encouraged to read the full description of markup characters in Markup.rtf.