



Macros and Math

Part 4 of the Series “Duxbury Braille Translator:
from First Paddle to Flocking Flying”

Description

Yes, we are going to talk about math. But that is not all! We are also going to talk about macros and other shortcuts, which can be used for any kind of document. Fly away from this session as captain of your own craft, on your way to a mastery of Duxbury Braille Translator.





Hello

Kyle DeJute

Braille Trainer at APH



Poll Time! #1
It is time for a poll/quiz!

Poll One!

1. Is there any macro or math in which you are particularly interested today?

A. Yes, I have typed it in the chat.

B. No. I am interested generally.



What is a Macro?



Definition

Macros are sequences of events (such as keystrokes and mouse clicks) that can be played back to help with repetitive tasks.

“a single instruction that expands automatically into a set of instructions to perform a particular task”

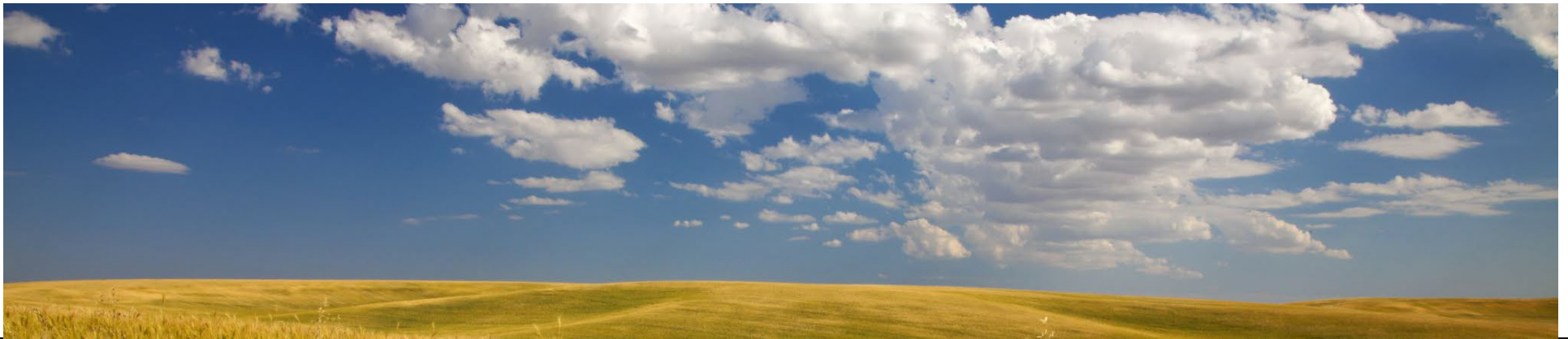
...

It's a shortcut.



What are some things we can do with macros?

- Condense many clicks through menus into a single keyboard command
- Insert text
- Insert symbol(s)
- ...



What is Math?

And, what are UEB and Nemeth Code?

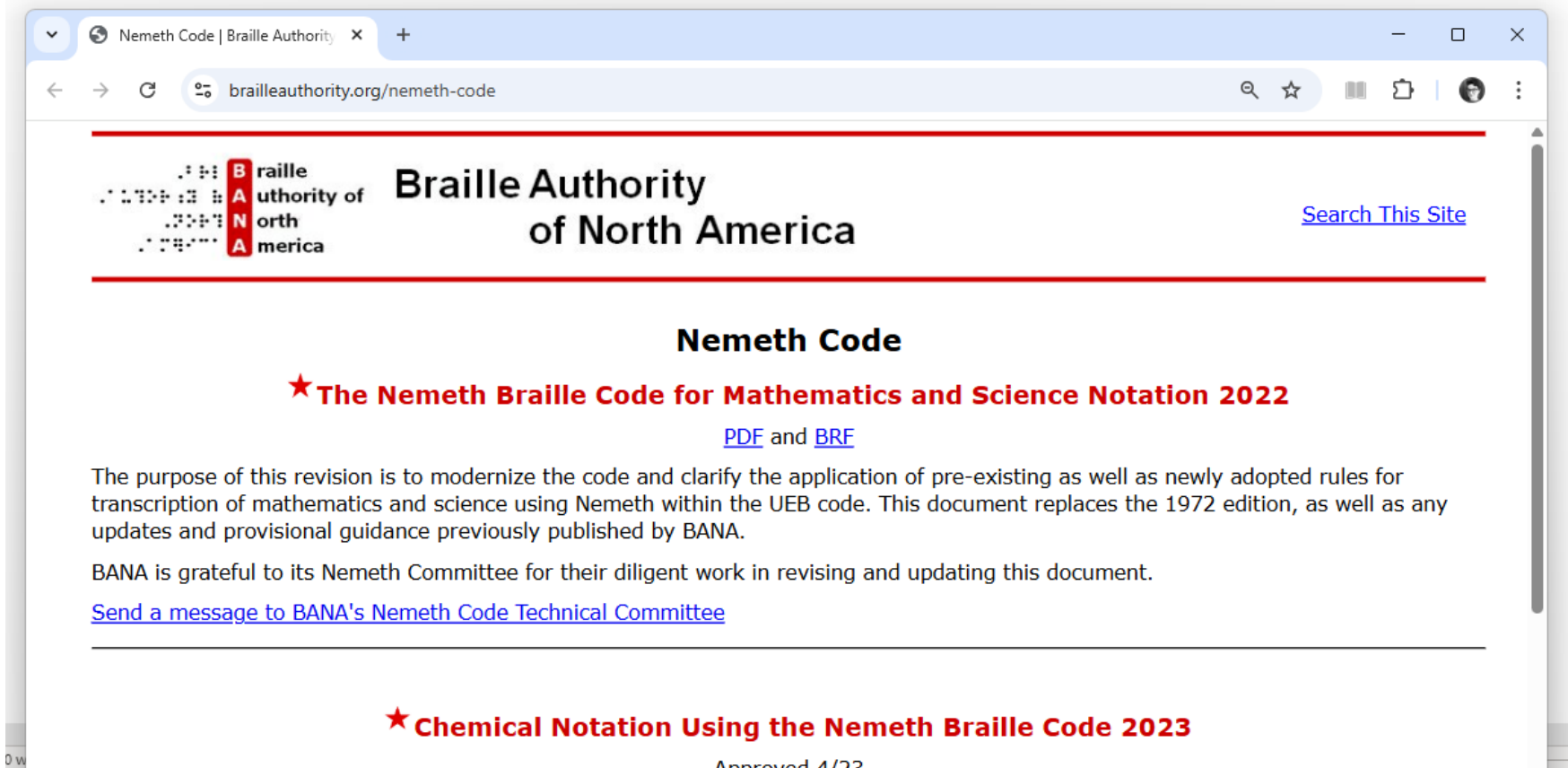


Concepts and Writing Systems

- Mathematics is the science and study of quality, structure, space, and change.
- + (plus) is not, in itself, the CONCEPT of addition; it is just a symbol
- $2+2$ and $\begin{smallmatrix} \bullet & \bullet \\ \bullet & \bullet \end{smallmatrix} \begin{smallmatrix} \bullet & \bullet \\ \bullet & \bullet \end{smallmatrix} \begin{smallmatrix} \bullet & \bullet \\ \bullet & \bullet \end{smallmatrix}$ and $\begin{smallmatrix} \bullet & \bullet \\ \bullet & \bullet \end{smallmatrix} \begin{smallmatrix} \bullet & \bullet \\ \bullet & \bullet \end{smallmatrix} \begin{smallmatrix} \bullet & \bullet \\ \bullet & \bullet \end{smallmatrix} \begin{smallmatrix} \bullet & \bullet \\ \bullet & \bullet \end{smallmatrix}$ are all written forms of communication ... of the same concept.

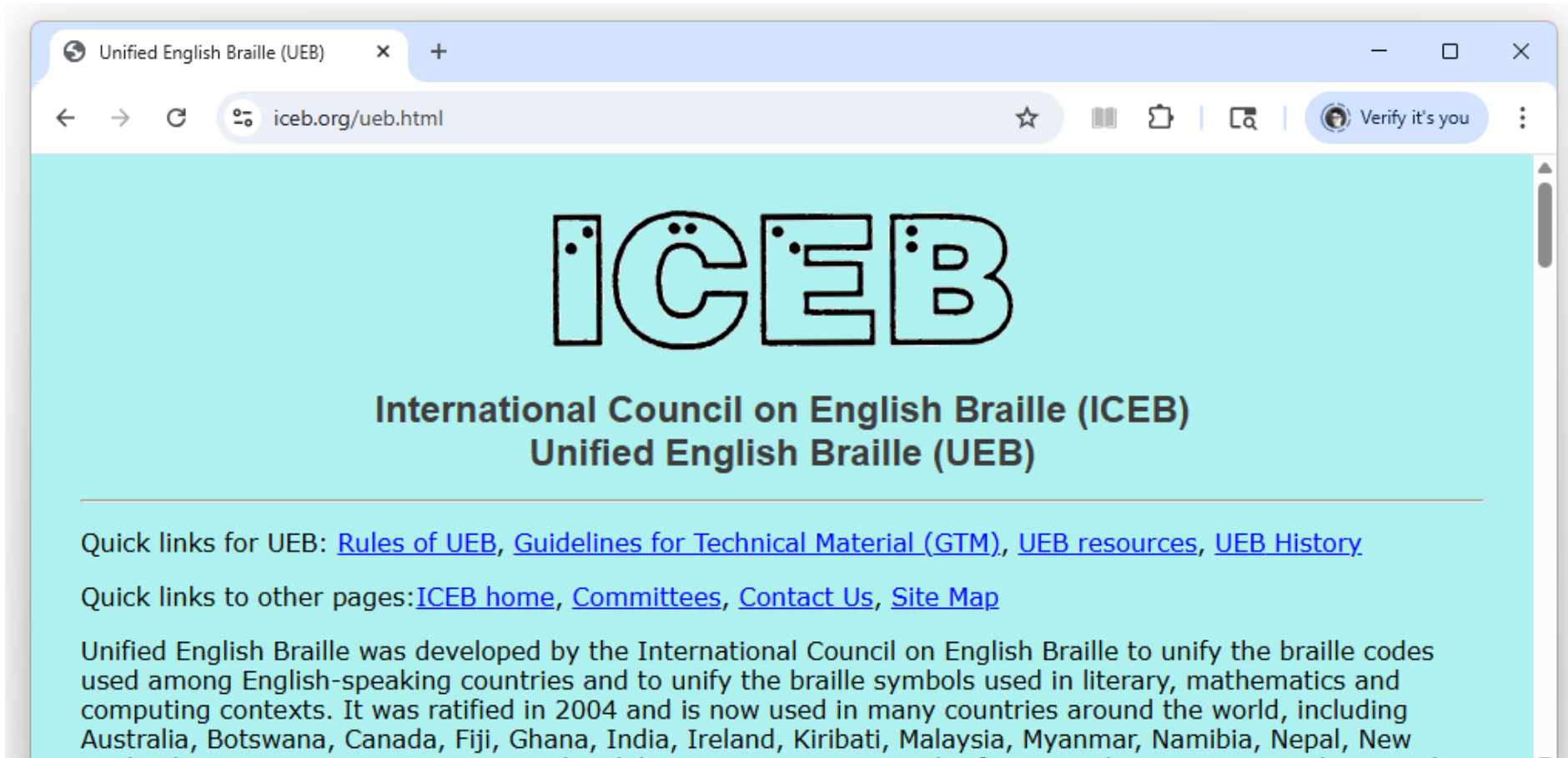
BANA's page on The Nemeth Code

BrailleAuthority.org/Nemeth-Code



UEB for Math and Science Information from ICEB

[ICEB.org/UEB](https://iceb.org/ueb)





Poll Time! #2

It is time for a poll/quiz!

Poll Two!

2. Which macro do you think will have the greatest impact on efficiency? A shortcut that:

A. inserts the opening and closing codes for a superscript

B. inserts all parts of a title page for “My Fair Lady”

C. finds all “Heading 1” styles in a document



Poll Two, the Answer!

2. Which macro do you think will have the greatest impact on efficiency? A shortcut that:

A. inserts the opening and closing codes for a superscript

B. inserts all parts of a title page for “My Fair Lady”

C. finds all “Heading 1” styles in a document

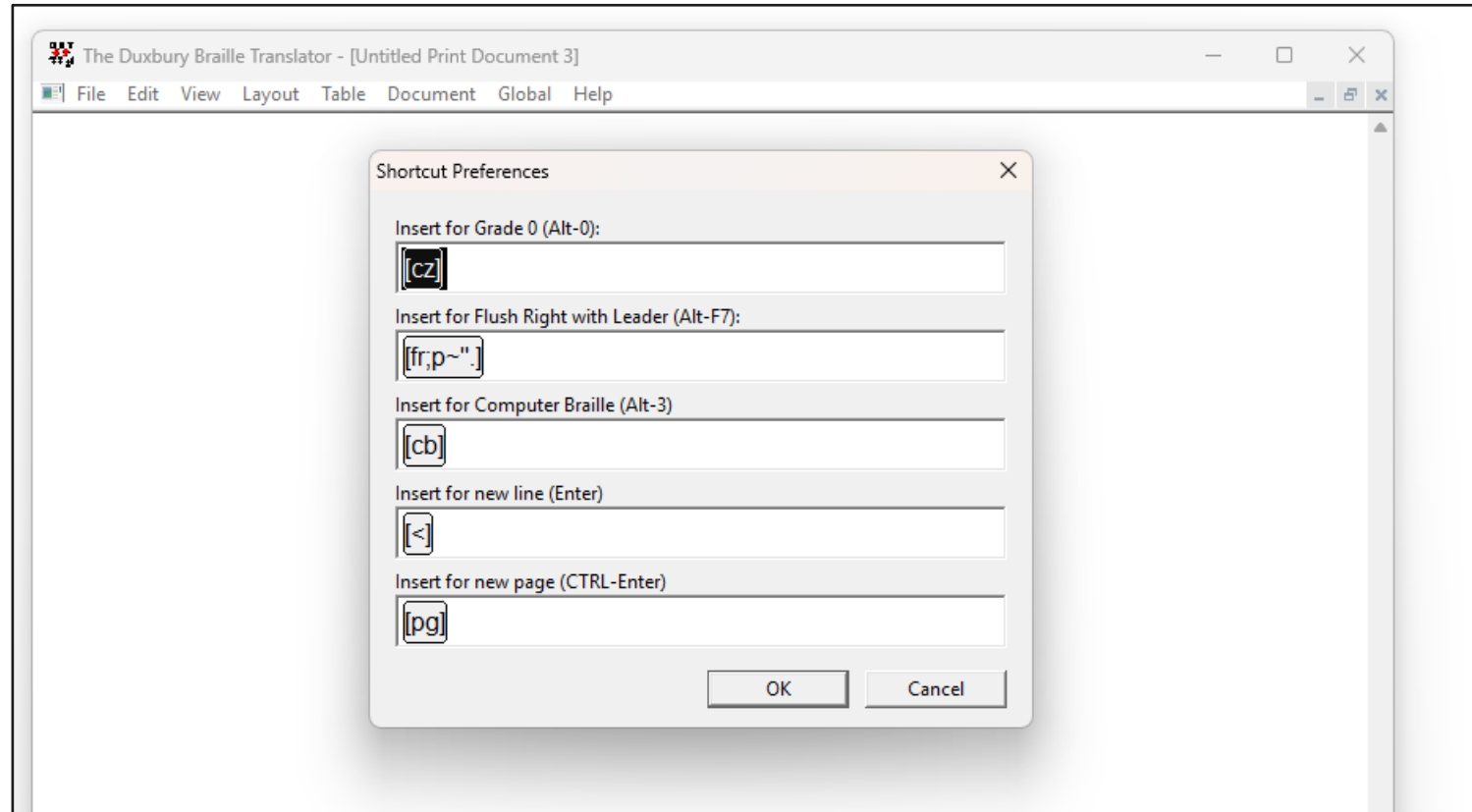


Making a Macro: in DBT, in Word, in the system



Making a Macro in DBT

In the “Global” dropdown menu, choose “Shortcut Preferences,” and edit as you dare. 🐧



Translate to Discover

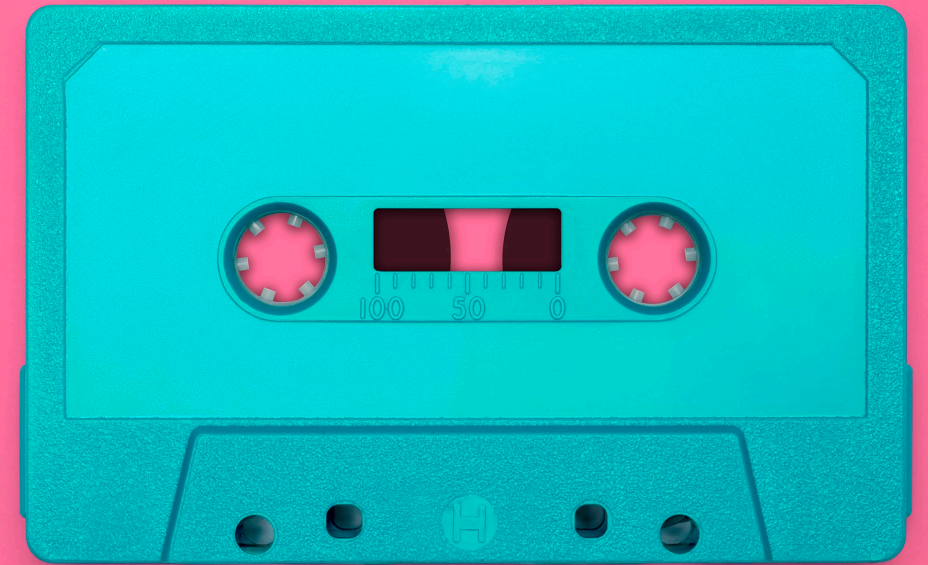
In DBT, when you know the braille but not the codes, translating from braille to print may reveal useful codes and styles.



Making a Macro in Word

Choose “Record Macro” somewhere on Word’s Ribbon (perhaps under the View tab, in the Macros group) and then perform your macro using measurable clicks and keyboard strikes.

See also [“Create or run a macro,” from Windows](#)



Making a Macro in Your System

Probably use a third-party program



You Are Using DBT



It's Broken!!! Why?

Diagnosing Macros



Security settings (or “trust” settings) do not allow macros

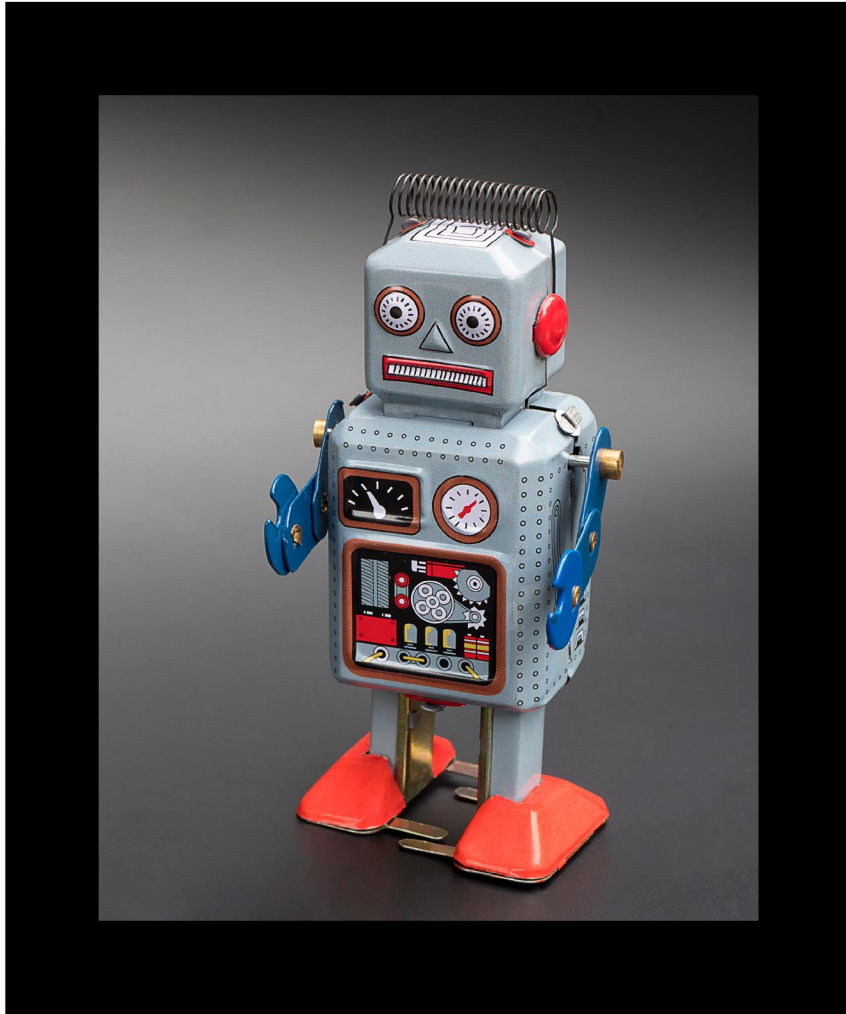


Search “enable macros” or “allow macros” for whatever program.

For Word,

1. Open Microsoft Word
2. Click Options
3. Click Trust Center
4. Click Trust Center Settings
5. Select a macro option
6. Click OK.

Start point is not correct



- Cursor placement
- Content selected or not
- ...

Something is not where it can be grabbed

- Another macro
- Copied text
- ...
- Text or other content selected with mouse and cursor



It takes many tries to make a great mixtape



There is no shame in practicing the actions that you will record. Nor is there shame in writing down the steps or in talking through step-by-step directions for yourself ... or in anything else that works for you.



Poll Time! #3

It is time for a poll/quiz!

Poll Three!

3. True or False? You should assign your Word macro to a keyboard shortcut (instead of assigning it to a button on the toolbar).

A. True

B. False



Poll Three, the Answer!

3. True or False? You should assign your Word macro to a keyboard shortcut (instead of assigning it to a button on the toolbar).

A. True

B. False

Note for above: BOTH are fine. Any answer is correct. Do what works for you. YOU are using DBT and, by extension, Word.



Slope Formula



Print (Slope Formula)

$$\frac{\text{rise}}{\text{run}} = \frac{y_2 - y_1}{x_2 - x_1}$$

Braille (Slope Formula)

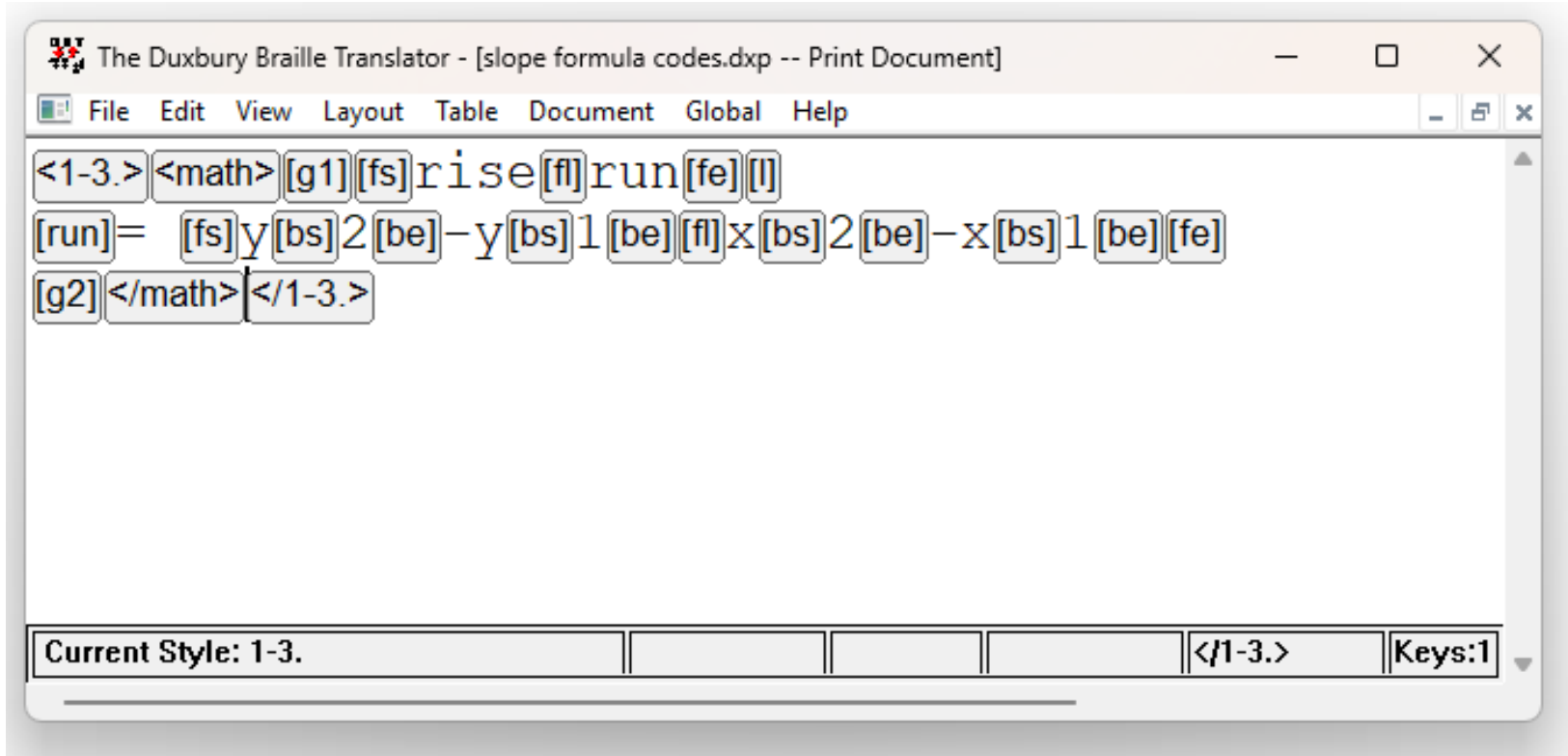
UEB Math/Science

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

Nemeth Code

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

Coded in DXP (Slope Formula)



The screenshot shows a window titled "The Duxbury Braille Translator - [slope formula codes.dxp -- Print Document]". The menu bar includes File, Edit, View, Layout, Table, Document, Global, and Help. The main text area contains the following DXP code:

```
<1-3.><math>[g1][fs]rise[fl]run[fe][l]  
[run]= [fs]y[bs]2[be]-y[bs]1[be][fl]x[bs]2[be]-x[bs]1[be][fe]  
[g2]</math></1-3.>
```

The status bar at the bottom shows "Current Style: 1-3." and "Keys:1".

See the next slide for explanation of styles and codes.

Styles and Codes Used for Slope Formula

<1-3></1-3> sets us up for a well-placed runover

[fs] **[fl]** and **[fe]** give the start, line, and end of each fraction

[l]**[run]** give us a “soft return” so forces a line break with a runover after

[bs] and **[be]** give the start and end of the subscript

[g1] and **[g2]** set us up for a grade 1 passage in a UEB Math/Science transcription

$$ sets us up for success in a UEB-with-Nemeth transcription



What parts of the slope formula might we make into macros?



More



What are some things we can do with macros? (repeat)



- Condense many clicks through menus into a single keyboard command
- Insert text
- Insert symbol(s)
- ...

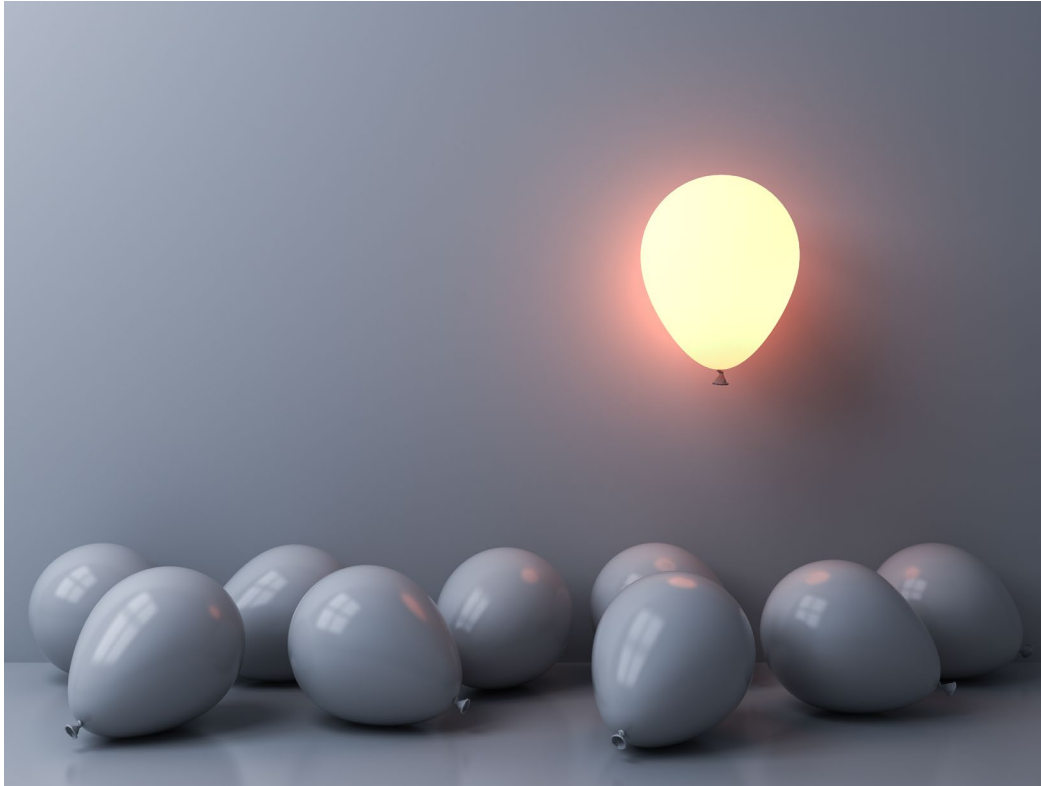
Fractions

[fs] then **[fl]** and last **[fe]**

fraction start then
fraction line and last
fraction end



Superscripts (and Subscripts)



[ps] then **[pe]**

or

[bs] then **[be]**

for

**superscript start then
superscript end**

or

**subscript start then
subscript end**

Modifiers

[e] *modified material*

[os] *modifier that is over*

[oe]

[e] *modified material*

[us] *modifier that is*

under **[ue]**





Poll Time! #4
It is time for a poll/quiz!

Poll Four!

4. Which is the most likely reason that a macro would not work?

A. The file was not saved.

B. It includes a step of copy/paste that is not part of the macro.

C. It was not cooked al dente.



Poll Four, the Answer!

4. Which is the most likely reason that a macro would not work?

A. The file was not saved.

B. It includes a step of copy/paste that is not part of the macro.

C. It was not cooked al dente.



More?



Unicode!

Many symbols and shapes have a Unicode character that will translate correctly.

Unicode even includes braille cells themselves, which have a set of [Unicode Braille Patterns](#). See what you find when you search “Unicode” in the third edition of Rules of UEB!



Page Numbers

Print Page Numbers

- In BANA templates:
 - RefPageNumber.
 - RefPageNumberEmbed
 - pagenum
- Codes:
 - [lea] *page number*
 - [lec] *continuation pg num.*
 - [led] *discontinue pages*

Braille Page Numbers

[svpnpN:N:N:N] can set placement of all page numbers. The possible values for any N are: 0 for no place, 1 for upper left, 2 for upper right, 3 for lower left, 4 for lower right. The N's are (in order) braille on odd, braille on even, print on odd, print on even

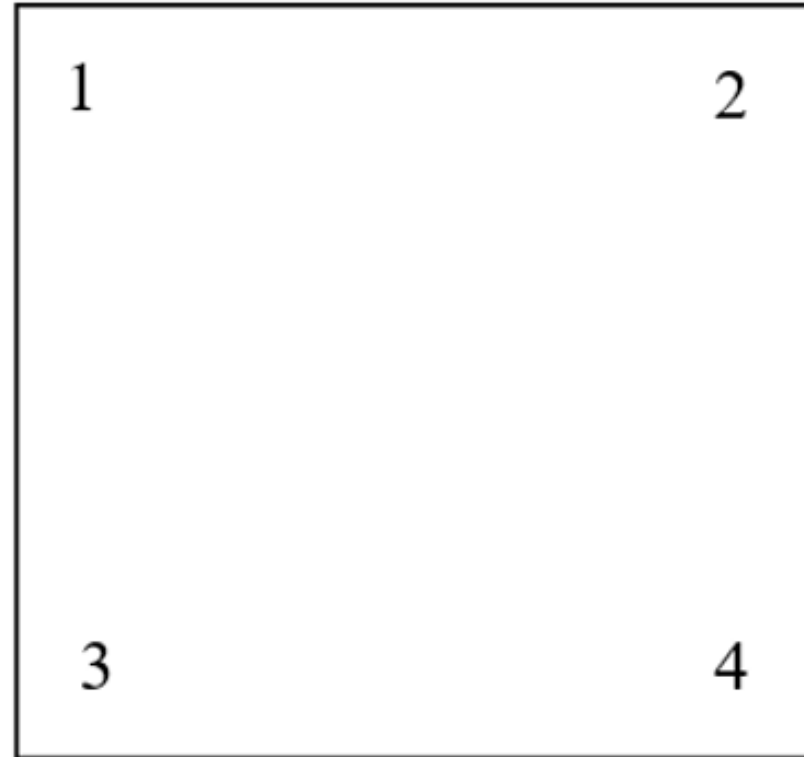
[pg#] begins a new page and sets the braille page number to #

[pv#~_] sets the braille page number to # and the page prefix character to _



Visual Mnemonic for svpnpN:N:N:N

⠠⠠⠠ odd
[svpnpN:N:N:N]
⠠⠠⠠ even



Blank Lines and Protection

Skip Lines:

- sk
 - **[sk1]** or **[sk2]** or **[sk12]** ... etcetera
 - [skn] nullifies a blank line
- sc
 - **[scL:M:N:P]** is a template for conditional line skips

Blank line codes are often “packed into” a paragraph style.

Keep Together:

- **[:]** and **[;]** keep together on a braille line
- **[kps]** and **[kpe]** keep blocks together on a braille page

Paragraphs and Lists

These can be styled via numbered and/or named styles.



More Tools

- [Custom templates](#)
- Professional development organizations
- ...





Poll Time! #5

It is time for a poll/quiz!

Poll Five!

5. Which of the following sets are the codes for a superscript in DBT? (for example, the “2” in x^2)

A. e os oe

B. e us ue

C. ps pe

D. bs be



Poll Five, the Answer!

5. Which of the following sets are the codes for a superscript in DBT? (for example, the “2” in x^2)

A. e os oe

B. e us ue

C. ps pe

D. bs be



Objectives

1. Describe at least two reasons why a macro may not work.
2. Take material from a file prepared for either UEB-with-Nemeth or UEB Math/Science and use it to prepare a file for the other.
3. Transcribe a fraction that includes a superscript using DBT codes.





Contact information

Kyle DeJute, kdejute@aph.org

Other Parts of This Series

1. [My First Document, recording](#) now on APH's YouTube channel
2. [Working in an Existing Document and Using Microsoft Word, recording](#) on APH's YouTube channel
3. [Getting Good at Editing, recording](#) on APH's YouTube channel
4. Today (May 20, 2025): **Macros and Math**





BONUS CONTENT

The Last Few Questions and Suggestions From
“Foundations of Duxbury,” 2022

Recording

The [recording of the 1-31-2022 APH webinar “Foundations of Duxbury”](#) is available on APH’s YouTube page.

The following slides contain responses to some questions that were entered in the chat or emailed to Kyle shortly after the webinar.



If I want to have more than one space after the first letter on a line, how do I make that happen? ...



Unbreaking Spaces Won't Break Your Heart!

... Dux always defaults to only one space between letters, even if you put a few spaces in the print document.

Hmmm, more than one space? Sure! You can use hard spaces (or “unbreaking” spaces); the keyboard shortcut for that in DBT is Alt+F2 and the code that shows up is a straight apostrophe (shown in square brackets in a gray-tan little box when “View Codes” are turned on). You can probably even put hard spaces in your Word document by using Ctrl+Shift+Spacebar (Option+Spacebar in Mac). Just beware, hard spaces will not break across a braille line, so they can be the cause of serious formatting weirdness.



Reminder to Format with Styles

If I am not getting what I expect from a Word document, I find helpful the principles explained in the APH Hive course [Building Accessible Word Documents](#).



Can you do Spanish in DBT?



Context Matters Very Much

Without lots and lots more information, *I cannot give a full answer* to the question of whether you can transcribe Spanish in DBT. There are different rules for contracting and formatting Spanish depending on what kind of document you're transcribing as well as on who the intended audience is. [BANA's Guidelines for Braille Transcription of Languages Other Than English](#) may help you decide what the formatting and contraction rules apply to your situation.



If you know you need Spanish *within UEB*

I can tell you that in DBT's template "English (UEB) - BANA" there is a **character style called "spanish"**. That style transcribes the affected text without contractions and using the Spanish language single-cell braille symbols for accented/modified letters (e.g., á, é, í, ó, ö, ú, ü). More information about symbols for letters and punctuation in the Spanish language is given in [World Braille Usage, a PDF of which is available from Perkins' website](#).

You may be able to apply the character style "spanish" in DBT by highlighting the affected text in DBT and then choosing "spanish" from the Apply Style pop-up box (which you can bring up by pressing F8). If you are working in Microsoft WORD, you may be able to apply the character style "spanish" from the Braille tab. Select the text you want to affect, then press the red "S" in the Language category in the Braille tab.



Are there keyboard shortcuts for navigating files within the Duxbury program window?



Ctrl + Tab and Others

Yes! You can navigate between and manipulate files without visually searching for tiny x's and file names. A few examples of DBT file management keyboard shortcuts are:

- to close the file in which you are currently focused, use Ctrl+F4 (In other words, you can use Ctrl+F4 to get rid of a "clone.")
- to navigate between files within the DBT program, use Ctrl+Tab (This often maximizes the selected file as you tab between multiple open files.)





EXTRA BONUS CONTENT

Quadratic Formula



Print (Quadratic Formula)

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

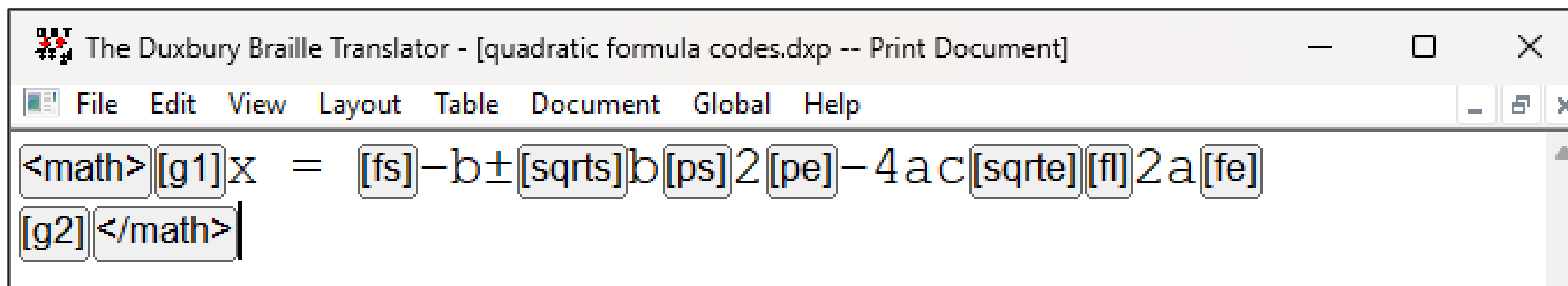
Braille (Quadratic Formula)

UEB Math/Science

Nemeth Code



Coded in DXP (Quadratic Formula)



The screenshot shows a window titled "The Duxbury Braille Translator - [quadratic formula codes.dxp -- Print Document]". The menu bar includes File, Edit, View, Layout, Table, Document, Global, and Help. The main text area contains the following DXP-coded quadratic formula:

```
<math>[g1]x = [fs]-b±[sqrts]b[ps]2[pe]-4ac[sqrte][fl]2a[fe]
[g2]</math>
```

See the next slide for explanation of styles and codes.

Styles and Codes Used for Quadratic Formula

$$ sets us up for success in a UEB-with-Nemeth transcription

[g1] and **[g2]** set us up for a grade 1 passage in a UEB Math/Science transcription

[fs] **[fl]** and **[fe]** give the start, line, and end of the fraction

[sqrts] and **[sqрте]** give the start and end of the square root

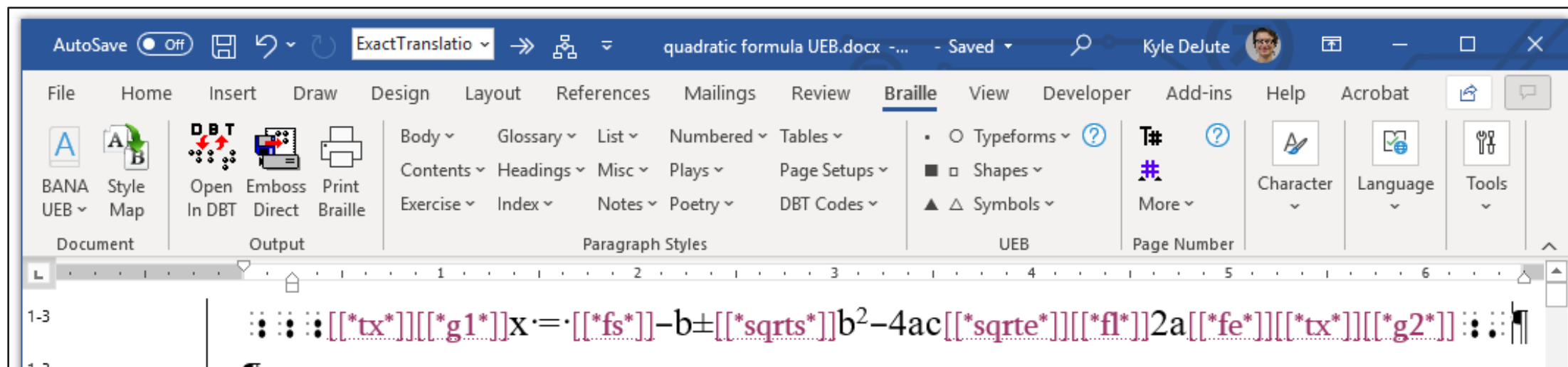
[ps] and **[pe]** give the start and end of the superscript



What parts might we make into macros?



Coded in Word, UEB (Quadratic Formula)



Coded in Word, Nemeth Code (Quadratic Formula)

