# **Using the Desmos Math Tools with Low Vision and Blind Students**

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Texas School for the Blind and Visually Impaired “Coffee Talk Recordings.”
<https://www.tsbvi.edu/videos-webinars/coffee-hour-recordings>
Scroll down to the list to locate **Accessible Interactive Math with Desmos.**

The Desmos calculator is available at [www.desmos.com](http://www.desmos.com)

From the top of the webpage press **tab** once to go to **Math Tools**, then **Enter**, then use **Tab** to navigate. The following options are available:

* Graphing Calculator
* Scientific Calculator
* Four Function Calculator
* Matrix Calculator
* Test Practice
* Geometry Tool

Press tab to go to the next link **Resources**. The options are

* Learn Desmos
* Accessibility
* Assessments

Under **Accessibility** are the following options:

* Overview
* Screen Reader Setup
* Using the Calculators
* Using Braille
* Mobile Apps
* Classroom Activities
* Keyboard Shortcuts
* Feedback

**Keyboard Shortcuts** documentation are available in Microsoft Word files, docx and Braille Ready Files, brf for the **Four-Function Calculator**, **Scientific Calculator** and **Graphing Calculator**.

The Desmos Scientific Calculator has a **Setting** Icon that looks like a wrench. Selecting this icon and turning on Projector Mode will increase the font size of the calculator. ans will place the answer in the next calculation.

Braille mode can be turned on here and Nemeth can be selected. Six key input can be selected. If you are using the APH Mantis Q40 Braille display the student can Braille with the letters fdsjkl.

Currently it is only possible to emboss graphs to the View Plus Tiger VP Max and the Enabling Technologies Romeo 60 and Juliet 120.

## Using Desmos with Windows/JAWS

* Set speech to Full Speech: JAWS+Space+S
* When the Virtual Cursor is active the arrow keys and First Letter Navigation commands can be used to navigate the page.
* When the Virtual Cursor is not active the student is able to enter information in the calculator: JAWS+Z will toggle the Virtual Cursor.
* Set the Braille mode for input and output to 8 dot computer Braille.

## Using Desmos with Chromebooks/ChromeVox

* Turn off Earcons if you are using the Graphing Calculator.
* Set Braille mode to 8 dot computer Braille
* Use the Forms command to navigate: ChromeVox+F, or ChromeVox+Shift+F to go backward.
* The Desmos keystrokes for Nemeth and Six-Key entry conflict with Chrome keystrokes.
* Navigate to the Setting icon and turn on Nemeth and Six Key entry.
* If the student does not know the Nemeth symbol it can be entered directly, such as sqrt for square root.

## Useful ChromeVox Braille Commands

* Enter: Space + dots 4-6
* Escape: Space + dots 1-3-5-6
* Backspace (Erase): Space + dot 7
* Navigate forward by Forms: Space + dots 1-2-4
* Navigate backward by Forms: Space + dots 1-2-4-7

## Showing Your Equations

It is feasible to do a screenshot of six equations, however only three will display on the screen when Nemeth is on. After no more than six equations have been entered press tab three times to turn Nemeth off.

### Pasting a Screenshot into a Microsoft Word Document Using JAWS

* Windows Maximized: Alt+Spacebar, X
* Have a Microsoft Word document open.
* Enter Windows+PrtSc to take a screenshot of your entire screen. On some newer computer it will be necessary to use the Function key also.
* Alt+Tab to Microsoft Word
* Go to Insert, then Screenshot

### Pasting a Screenshot into a Google Doc Using ChromeVox on a Chromebook

* Take a screenshot with Ctrl+ (Overview Mode.)
* Open a Google Doc and paste this image.
* Alt+I for Insert, then down arrow to Image
* Right arrow to Upload from computer
* Screenshots will show under downloads