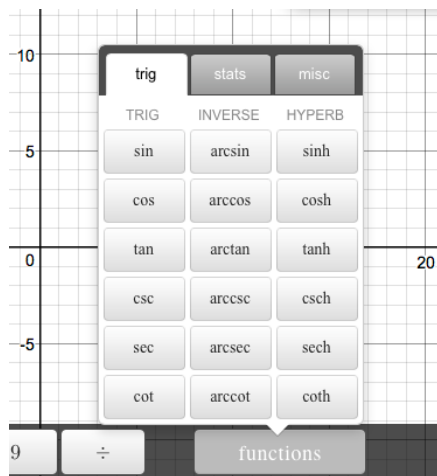


Desmos: Graphing Calculator For All

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Introduction

Desmos is an online graphing calculator that can be used for many activities in a math classroom. It is a free, online resource, making it easy to access for anyone with Internet. This graphing calculator has many features that ordinary graphing calculators do not, making it a very useful teaching tool. It can graph any slope-intercept form functions, as well as functions in standard form. This calculator can also graph circles, or other equations that are not functions, making it unique to most other graphing calculators. There is also a useful “function,” options section where one can access trigonometry, statistics, and miscellaneous functions.



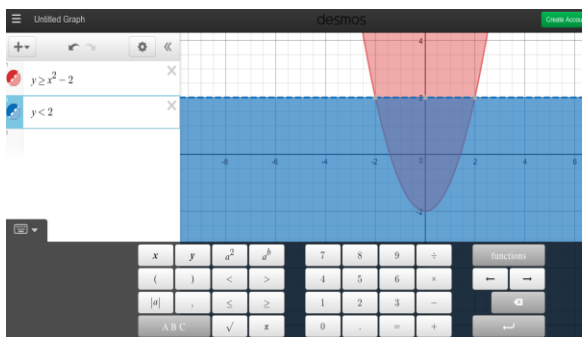
In addition to this, on the keyboard provided on the screen, there are options for notations such as inequalities, square roots, and absolute values, making it easy to display a wide range of graphs. There

are many options for displaying the functions as well. Each function is assigned to a unique color, can be easily added or subtracted from the bar, and the teacher can choose to show and hide the graph or the function. All of this combined makes Desmos a very useful teaching tool. To access Desmos, go to <https://www.desmos.com/calculator>.

Example Lesson

There are many lessons that can be enhanced by the use of Desmos, particularly, a lesson that focuses on the concept of graphing and understanding inequalities. The Desmos graphing calculator comes with the option of graphing inequalities, which is easily assessable. Any function can be typed into the function input at the upper left side of the screen. Following this, any inequality can be chosen on the online keyboard at the bottom at shown below. This makes it a simple and effective tool for students of both older and younger ages to use. One way to teach the concept of inequalities is simply by demonstrating an example to students on the projector.

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In this example, the teacher could project the inequalities y is greater than or equal to x squared minus two, and y is less than 2, and students could then have a visual representation of this. The different colors and shadings in the graph make it very easy to see the solutions in purple, where the two inequalities intersect. This example can also be used for class discussions. For instance, the teacher could pose the question, “What area of the graph do you think will be shaded given these inequalities?” The teacher could then guide the students through connections of how inequalities in a function apply visually, to which the class could check their answers once the teacher shows the graphs. A teacher could also conduct this same activity by having students gather into groups using whiteboards where they would shade the inequalities accordingly. Conversely, students could volunteer individually to go up to the front of the room and draw their depictions of the inequalities. In either case, upon the students giving their answer, the solution can be

revealed via projecting the Desmos solution onto the front board. The solution could even be projected on the whiteboard where the student drew his or her answer. If a class had access to a computer lab or if students were required to have internet access at home, students could use Desmos to check their answers individually as well. Coupled with a verbal explanation by the instructor as the lesson is instructed, the instructor is able to play to the three central learning styles as defined by Gardner; visual, auditory, and because Desmos is an interactive and tangible technology, kinesthetic. By doing this, the instructor can also bypass the obstacles that ELL students met with. Specifically, because Desmos is essentially a visual and modeling program, we can overcome the language barrier that these students are met with. Overall, Desmos is a very versatile technology that an instructor could use to teach the lesson in a way that best fits their class.

Conclusion

Due to its free, online accessibility, Desmos is a great tool that is made largely available to students from all walks of life, whether they are low class, upper class, foreign-exchange or born-and-raised. It is essentially the “Swiss army knife” of calculators, given that it has many different

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features that make it an applicable resource to all different levels of mathematics. Because Desmos can be displayed on a modern document camera or other form of projection, it provides a powerful visual representation to students inclined towards visual learning and can even supplement students who have a visual impairment. In addition to this, it is a simple way to implement technology into the classroom, which is all too important and relevant in education today. Using Desmos will promote student use of online resources as they continue through their education. As students become comfortable with this calculator, it can be used to promote understanding of many mathematical topics that the students can explore on their own. Not only this, but it can familiarize student with technology used for an academic purpose and ignite their curiosity in education.