

GeoGebra

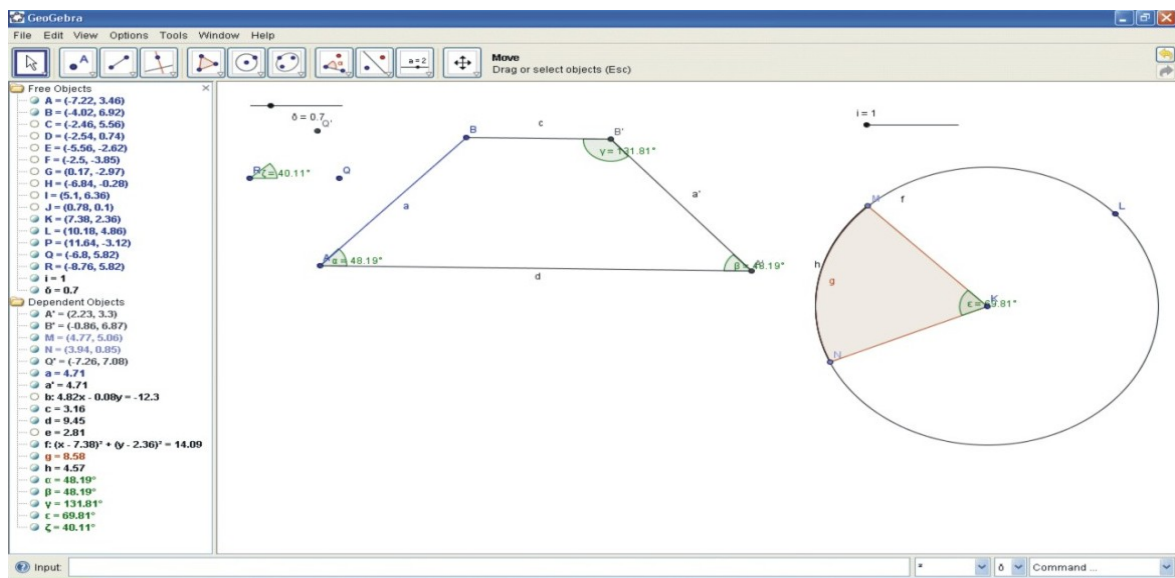
Dynamic Geometry and Algebra

1. GeoGebra Information

- This document at <http://www6.svsu.edu/~zerger/GeoGebraIntro.pdf>
- Home site at www.geogebra.org. This has general information, instructions on downloading the software, as well as a few examples. It also has links to other popular sites with information. In particular, [GeoGebraWiki](http://www.geogebra.org/wiki) is a free pool of educational materials for GeoGebra. Everyone can contribute and upload materials there.
- Mike May of Saint Louis University has many nice geometry applets, including step by step ruler and compass construction steps. <http://www.slu.edu/classes/maymk/GeoGebra>

2. Accessing and/or downloading GeoGebra












- Go to the GeoGebra homepage at www.geogebra.org to download or use the software.
 - To only use the software as an applet. Click the Webstart icon once, then click on the Applet Start icon.
 - To download the software to your computer. Click on Webstart, then click Webstart again and follow the download instructions. This will put a GeoGebra icon on your desktop to activate the software on your computer. After downloaded, double click on the icon to open GeoGebra.



3. The GeoGebra Screen, Preferences

- In the View menu you can set what your screen looks like.
 - Above I have the **Algebra View** (left) and the **Graphics View**(right) open side by side.
 - In the graphics view you can decide if you would like to see the axes and/or grid or not.
- In the Options menu you can set preferences as well. (Color, fonts, how objects are measured, etc.

- The **Tool icons** at the top have the most commonly used tools. NOTE THAT EACH ONE HAS A DROPDOWN MENU ARROW IN THE LOWER RIGHT CORNER.

	Move. To select and move items on the screen
	Point. Construct points, midpoints, centers. <i>Algebra View: coordinates</i>
	Line/Segment. Rays and vectors. <i>Algebra View: segment lengths, line equations</i>
	Line Properties. Parallel, Perpendicular, Angle Bisector, Tangents, Locus
	Polygon. <i>Algebra View: area</i>
	Circle. Arcs, Sectors <i>Algebra View: circle equations, arc length, sector area</i>
	Conics. Ellipse, Hyperbola, Parabola <i>Algebra View: conic equations</i>
	Angle. Length, area, slope <i>Algebra View: angle measure</i>
	Transformation. Reflection, rotation, translation, dilation.
	Slider. To dynamically move and change free objects.
	Draw Pad. Visualizing the screen. Zoom in/out, show/hide objects and labels

At the bottom of the screen is the **input bar** used for more options, including calculator calculations and function graphing. Hit F1 to get help on how to input commands.



4. A few helpful notes

- Right clicking on objects in the Graphics view or the corresponding equations, values in the algebra view will result in the Context Menu, which allows you to change names, labels, colors, styles, equation formats as well as more advanced options.
- The Algebra view is divided into **free objects** (objects made without using any other objects) and **dependent** objects. Free objects can be more readily changed (double click).
- You can **Hide/Show** objects and values by clicking on the “dot” next to each in the algebra view. This can also be done under the **draw pad** icon
- Values from (free object values) the algebra view can be put in the **input bar** to do calculations.
- **Sliders** are free objects, which can be used in formulas and functions. **Example:** To show a horizontal shift in the function $f(x)$, make a slider (I'll call it h) and type $f(x+h)$ in the input bar. Drag the point on the slider and see the graph shift left and right.
- Constructions that you use often that are not available you can create your own **tools** under the **Tools menu** after you make the construction. The **input objects** will be free objects and you can select the **output objects** you want from the dependent objects.

5. Printing/Saving your work

- Print Preview to see how it looks. You can use the Drawing Pad to move the screen so it looks as you want it.
- GeoGebra Files are saved with the .ggb extension. File→save as.
- You can also File→export the file and save the graphics view only as a picture in various formats, such as .pdf, .eps, .png.
- You can also File→export and export the graphics view only to the clipboard. Then you can paste it into a file as a picture.
- You can also File→ export the dynamic worksheet (the entire sheet – all views) as an .html file (a web page). The viewer can use the file as a dynamic file (drag and measure objects as well as use any of the menu options). Toolbars can also be included when you export as .html, then the viewer can add to the file.