

GeoGebra Basics

Handbook 1

A Guide for Learning GeoGebra

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Introduction

If you (or students) are not familiar with GeoGebra, this is the book for you. This book is designed to introduce middle school and high school students to the basic tools of GeoGebra. This handbook is a teaching tool. It is intended to supplement, not replace, your geometry curriculum.

During the first or second day of your work sessions, students should carefully read part one, establishing a good study program, and then move on to complete the free play tour. When possible, illustrations are provided to help visualize the various GeoGebra tools and to enhance written instructions. The tours and investigations will encourage you to work together in pairs and small groups to build on previous knowledge and apply knowledge to new information. Students learn well working in groups. When students get stuck on something, they say so, and other students help. This kind of learning is efficient, natural, and well-known.

The GeoGebra is a construction tablet, a computation tablet on which one draws models of geometric shapes, transforms them, colors them, measures them, and animates them. The models invite students to explore, represent, solve problems, construct, discuss, investigate, describe, and predict. Implicit to these functions is the ability to build mathematical models of simple and complex ideas.

About the Tours

Tours are technical exercises will teach you how to use the drawing tools, and how to use the command menus to accomplish specific tasks. Therefore, this handbook is fundamental a “how to” book in you will replicate sets of instructions, but it is also part geometry textbook. The geometry topics begin with a review of area and perimeter of close plane figures and ends with a study of Transformational geometry that leave objects unchanged (invariant). Between these two general topics you will study the Cartesian coordinate system.

Tours that combine GeoGebra tools with geometry have four sections.

1. An illustration of a specific concept using tools and menu functions,
2. a formal discussion of the concept to deepen your understanding of the theory,
3. a summary of the mathematical notations, or formulas one would use to compute with the concept,
4. and, problems to test their understanding of what you have learned (applications).

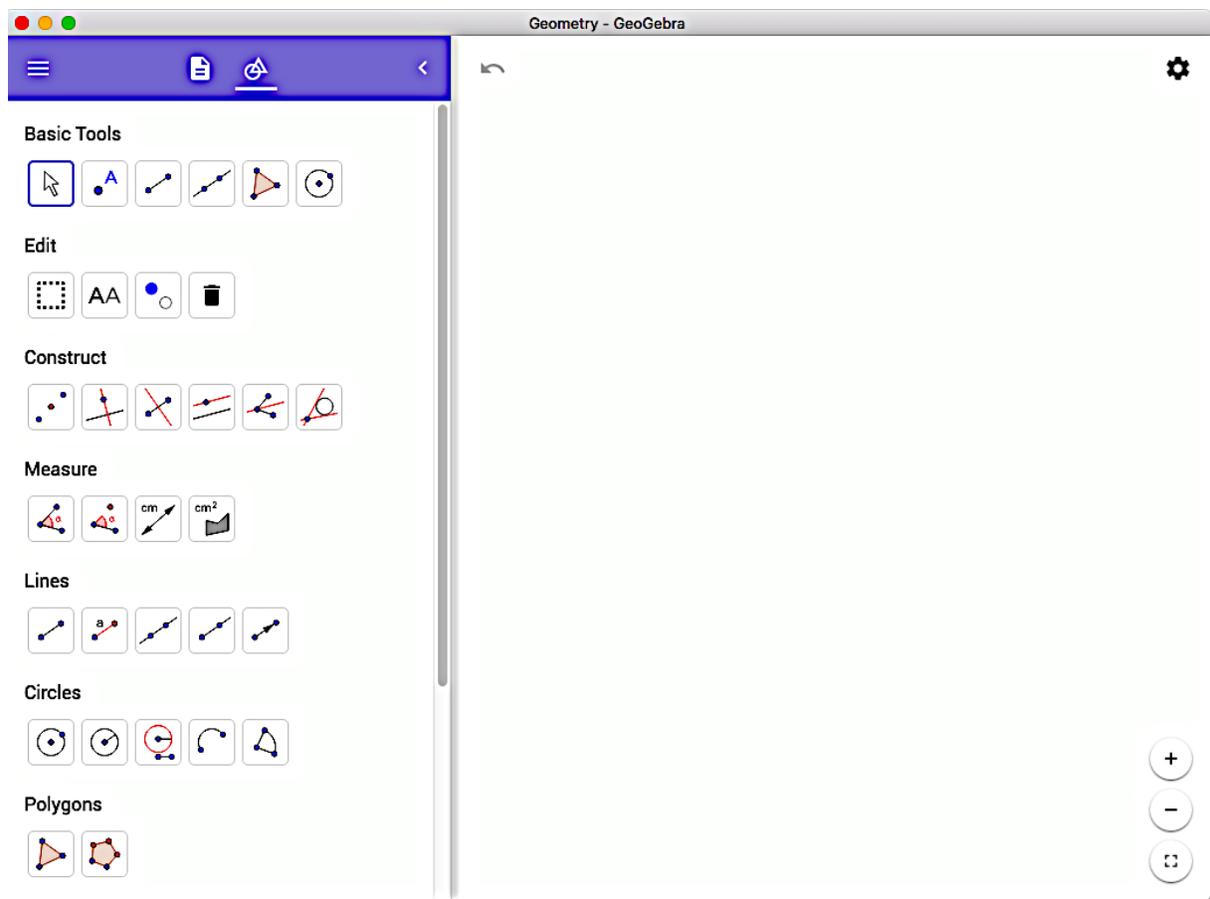
You should plan to work for longer than an hour to complete free play tour, and remember that work that is began during class should be finished at your own pace at home and/or during independent lab time.

GEOGEBRA BASICS

To open **GeoGebra Geometry**, double click on the icon that looks like the one in the figure below. We are using the **GeoGebra Geometry** version of the software.

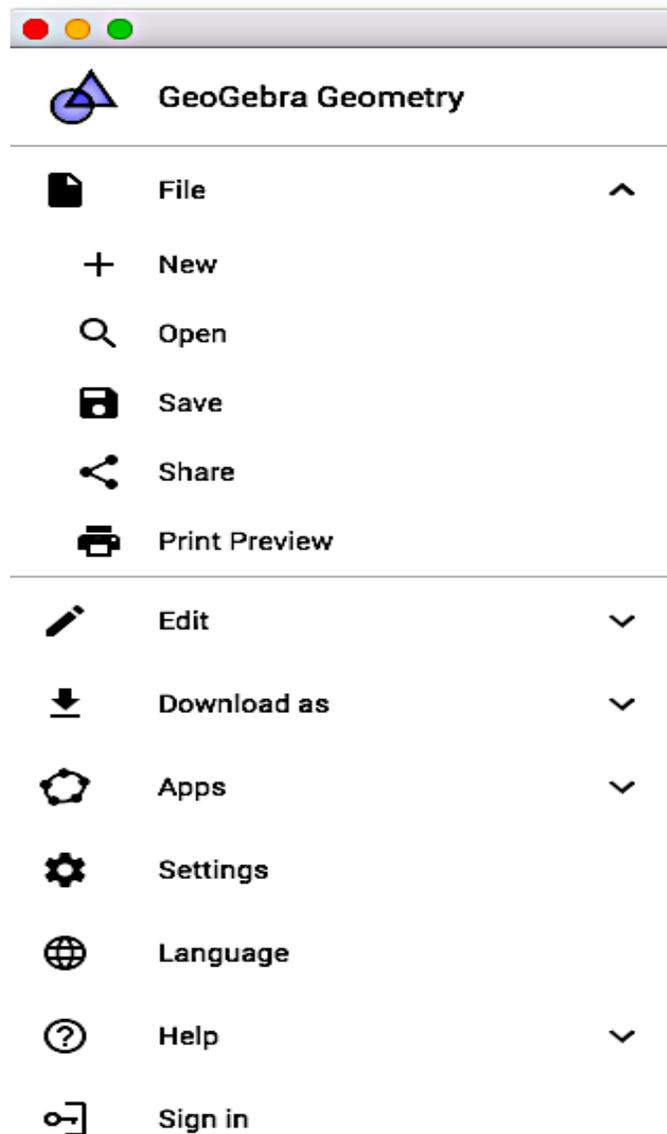


The construction screen has two principal sections. The first section (on the right side) is the **GRAPHIC VIEW** where you show and construct objects and the graphs of functions (equations). The second section (on the left side) is the **Tool Box** where you select the objects to use in your constructions. It looks like figure 2 below.



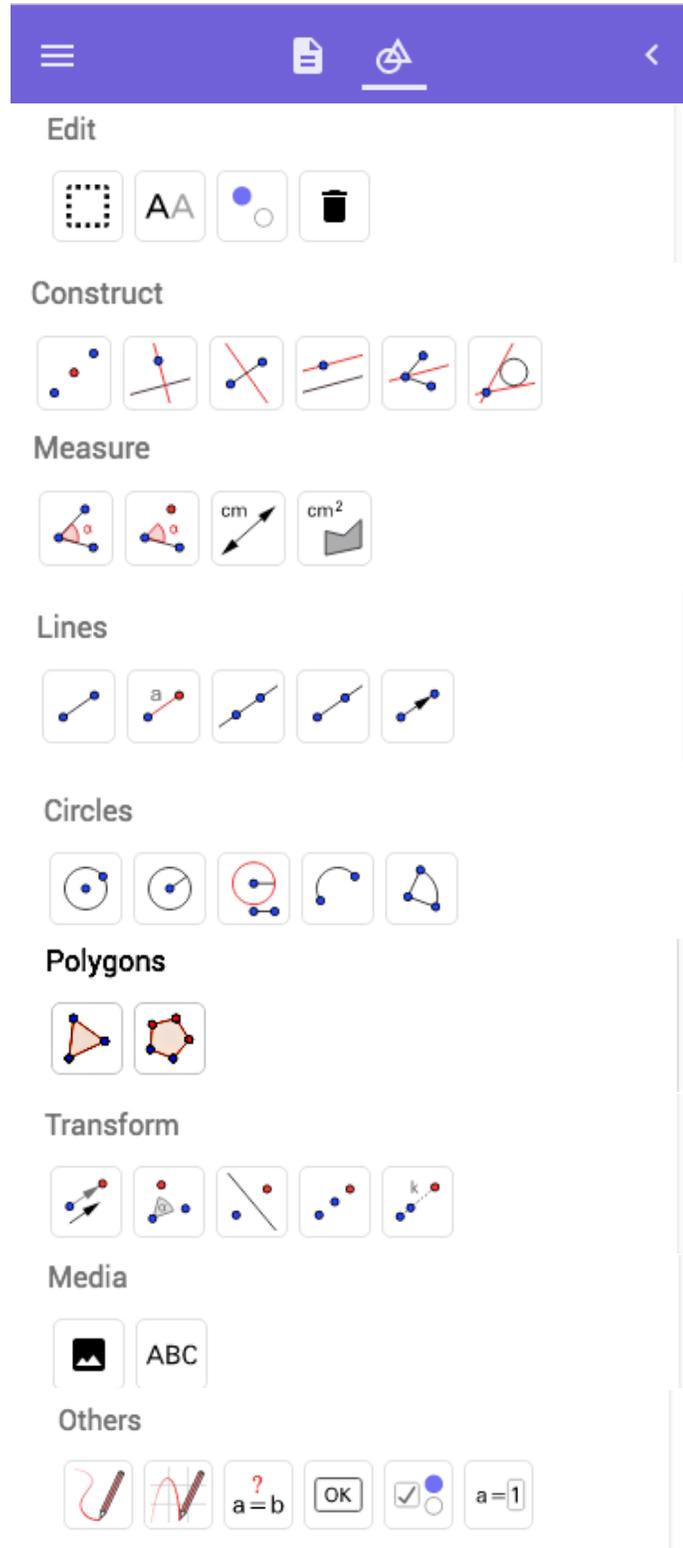
Menu

Select this icon  to access the menu bar which contains functions that allow you to open a new construction window, save your work, preview your work, edit your work, and other useful functions.



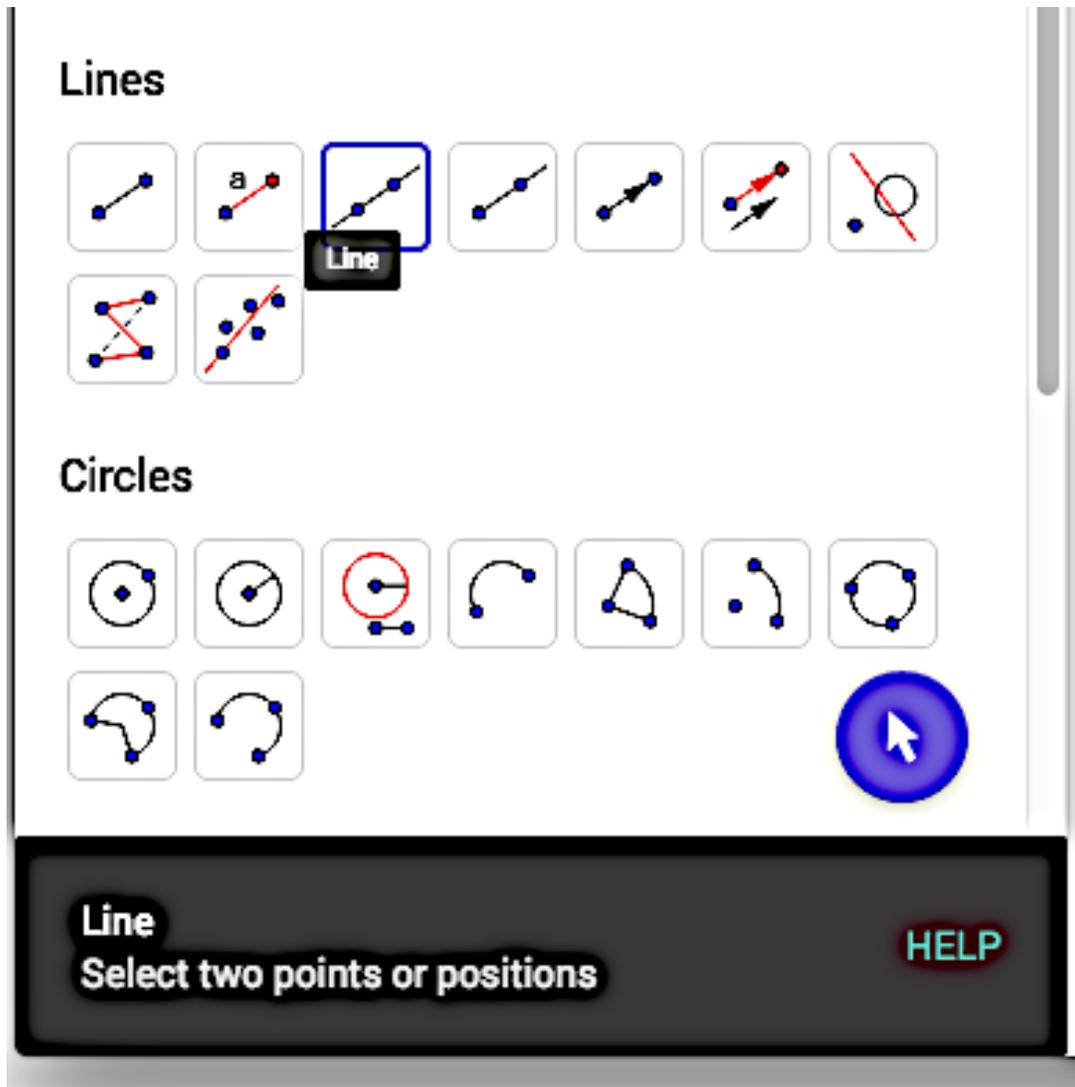
Select  to return to the **Tool Box**.

Construction Tools



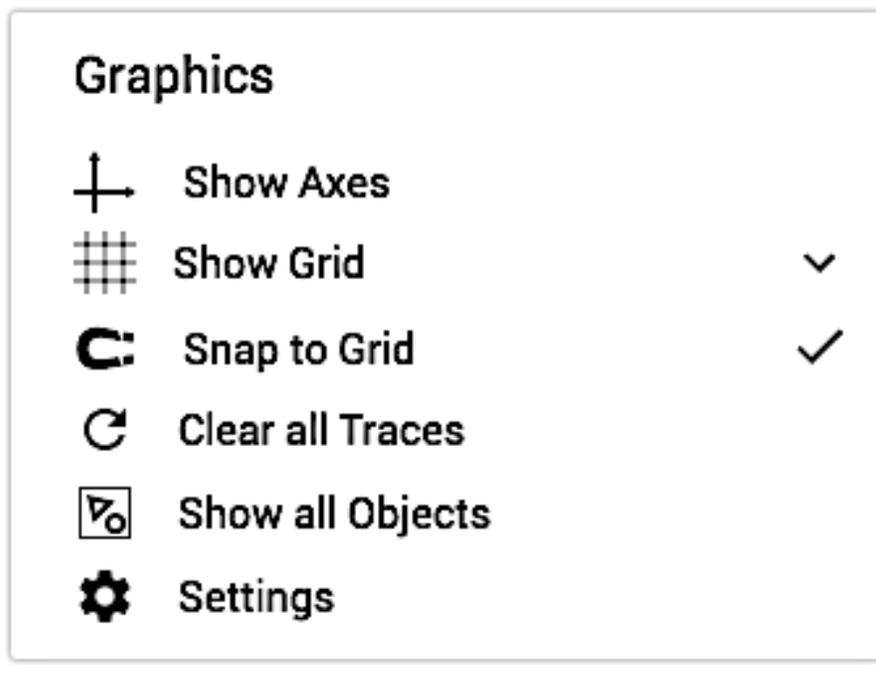
When a tool is selected, a help menu appears at the bottom of the screen.

Example: The line tool is selected and the help menu tells us to select two points or positions - a handy feature to have when we forget how to use the tool.





Select this button on the top right -  to see reveal the Graphics menu. We have options: **Show Axes**, **Show Grid**, **Snap to Grid**, **clear all Traces**, **Show all Objects and Setting**.



Select **Show Axes** and **Show Grid** to get the following Screen

