

Getting Acquainted with Sage

1 Accessing Sage

Sage is a powerful, freely available, open-source mathematics software system. Most of its functionality can be accessed through a web browser using the notebook interface.

This handout will guide you through a demonstration of some of Sage's basic capabilities that can be used for graphing surfaces in space.

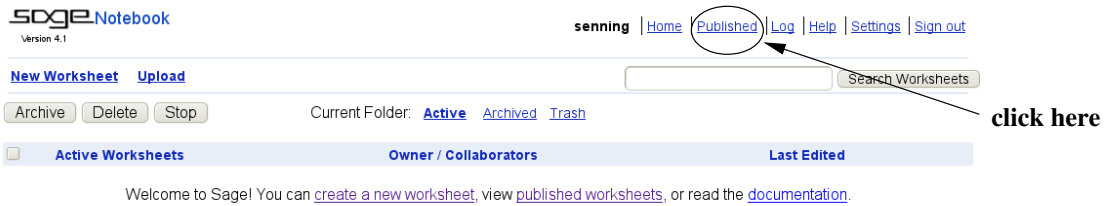
Sage can be downloaded and installed on your own computer. It is, however, a large and complicated package that is under constant development. We have configured a Sage server that is accessible both on- and off-campus.

To use the server you will first need to create an account. To do this, open a web browser and enter the URL `http://sage.math.gordon.edu`. Click on the link "Sign up for a new Sage Notebook account" which is located below the username and password textfields.

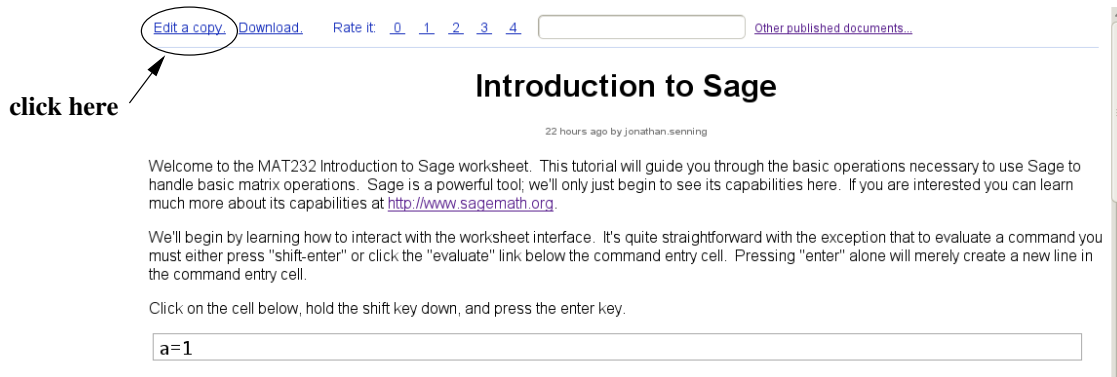
The screenshot shows the Sage Notebook login interface. On the left side, there is a header with the Sage logo and the text "Mathematics Software: Welcome!". Below this, there are several sections of text: "Sage is a different approach to mathematics software.", "The Sage Notebook" (describing interactive worksheets), "General and Advanced Pure and Applied Mathematics" (listing topics like calculus, number theory, etc.), "Use an Open Source Alternative" (comparing Sage to Magma, Maple, Mathematica, and MATLAB), "Use Most Mathematics Software from Within Sage" (listing packages like GAP, GP/PARI, Maxima, and Singular), and "Use a Mainstream Programming Language" (mentioning Python). On the right side, there is a white box titled "Sign into the Sage Notebook v4.1". Inside this box, there are input fields for "Username:" and "Password:", a "Remember me" checkbox, and a "Sign In" button. Below the "Sign In" button, there is a link "Sign up for a new Sage Notebook account" which is circled in red. An arrow points from the text "click here" to this link. Below the link, there is another link "Browse published Sage worksheets (no login required)".

Enter a username and password of your choice and click the "Create account" button at the bottom. You should be returned to the initial page and you can now enter your username and password in the textfields and click the "Sign in" button.

This brings you to your home screen. You can find prepared worksheets by clicking on the link "Published" link at the top of the page.



A list of published worksheets is displayed, click on the title of the “MAT223 Surfaces in Space” worksheet. To use this worksheet you will need to work with a copy of it; click on the “Edit a copy” link in the upper-left corner of the page.



Now follow the instructions in the worksheet.

When you are finished working through the worksheet, return to the top of the page and click on the “Save & Quit” button. This will return you to your Sage home page.

2 Creating your own worksheet

In the future when you want to use Sage you will probably want to create a new worksheet. Creating your own worksheet is easy; just click the “New Worksheet” link near the top-left of the Sage home page. By default new worksheets are named *Untitled*; it’s a good idea to change the name to something more descriptive. Use the “File” pull-down menu and select “Rename worksheet” to do this.