


Using the Internet for the game of Life and the Mandelbrot and Julia Sets

- 1) The game of Life.
 - a) To use *Life* on the Author's Website
 - i) Go to the class web site (www.naz.edu/pub/~mth109)
 - ii) Choose links
 - iii) Choose [Explorations by our text authors](#)
 - iv) Choose [Game of Life](#)
 - b) Other locations on the web
There are many other examples of the Game of Life on the web. Some are packages you may be able to download to your computer. Just search for "Game of Life" or "John Conway" + Life.

- 2) The Mandelbrot and/or Julia sets.
 - a) Use the program *Fractint*
 - i) See the instructions on the *Fractint* handout.
 - b) From the Author's Website
 - i) Go to the class web site (www.naz.edu/pub/~mth109)
 - ii) Choose links
 - iii) Choose [Explorations by our text authors](#)
 - iv) Choose [Julia and Mandelbrot Sets](#)
 - c) Using the **M/J Relationships** button
 - i) Choose the **M/J Relationships** button
 - ii) Zoom in as desired on the Mandelbrot set.
 - iii) Hold the Shift button and choose the point that you want for your Julia set
 - iv) **Release the shift button, being careful not to move your mouse.**
 - v) Your Julia set will appear and you will be able to zoom in on your Julia set.

- 3) Saving images from *Window* applications to a *Word* document
 - a) Open a *Word* document to hold your images. (If you know how to use *Photoshop* or a similar package, you can use this software.)
 - b) Get to the image you want on the screen.
 - c) Hold down the <Alt> key and hit the <Print Scrn> key.
 - d) Activate the application for the image
 - i) *Word*: choose paste and paste the image into your document. Save the document.
 - ii) *Photoshop*: Under the **File** menu, choose *New*. Accept the suggested size, and paste the image into the document. Save the document.

- 4) Cropping an image in *Word*
 - a) See an example of images before and after cropping on the following page.
 - b) Select the image.
 - c) Under the **View** menu, choose *Toolbars*, then *Picture*
 - d) With the image selected, choose the crop tool, 
 - e) With the crop tool, click on the selection boxes on the edge and corner of your image and drag them in to your desired location.

5) Image before cropping

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Julia and Mandelbrot Sets (Chapter 6.4)

Instructions

Shift-Click to View Julia Set

$f_k(z) = z^2 + [(-0.12) + (-0.77)i]$

Mandelbrot Sets

Julia Sets

M/J Relationships

Applet started Internet

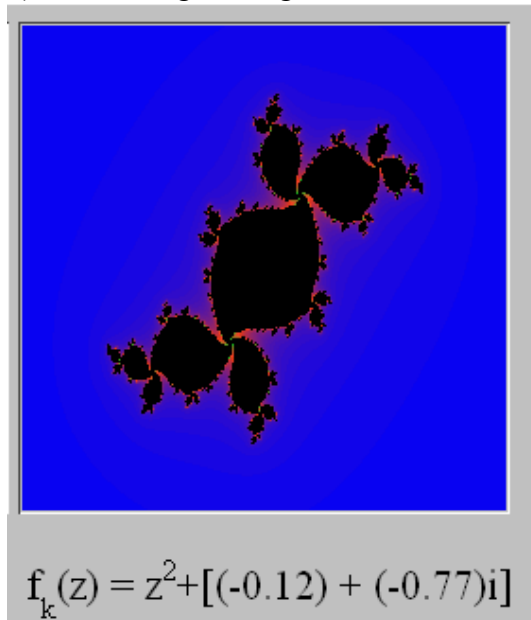
6) Image after cropping

$f_k(z) = z^2 + [(-0.12) + (-0.77)i]$

7) Resizing the image.

- To resize the image, with no tools selected, select the image. Hold down the shift key as you drag one of the corner selection squares. Holding the shift key will keep the image from being distorted.
- See the next page for the enlarged image

8) The enlarged image



9) Images in *Word*

- a) By default, your images will appear and act like they were large characters. This may be fine for you, just place images on their own lines and center them.
- b) If you want text to wrap around an image, select the image, use the right mouse button, and choose *Format Picture*. Click on the *Layout* tab and choose *Tight*. The image on the side of this text was formatted in this manner.
- c) Drag the image where you want it to appear.

