# Image Format

The ideal format for a publication image is a vector graphic. Images can be rendered in two types of graphic formats: raster (bitmap) or vector. Raster formats associates every pixel in the image with a specific color. Vector formats map equations to the shapes in the equations and use an algorithm to reconstruct the image based on its current aspect (i.e., size). Raster images, when made larger or zoomed in on, will only have the resolution they were originally rendered in; Therefore, some sections of the images will become pixelated. Vector images, on the other hand, can maintain the shape and quality of the originally rendered image regardless of how much you resize or zoom on the image (there is a maximum and minimum to this property, but not as extreme as a bitmapped image).

# Rendering a Vector Image in MATLAB

There are 3 different methods for outputting images in MATLAB, and there are 2 different renderers for constructing the images. Based on how you pair your output method and your renderer you may get an image you don’t expect. This is by no means an all-encompassing tutorial, but these examples will give you a basis for starting in on your figure generation journey.

## Links and Other Tutorials:

Tutorial (uses print() ): <https://www.youtube.com/watch?v=fF5dautaUfI>

Tutorial (uses print() ): <https://www.youtube.com/watch?v=wP3jjk1O18A>

Documentation on the print() function: <https://www.mathworks.com/help/matlab/ref/print.html>

Documentation on the exportgraphics() function: <https://www.mathworks.com/help/matlab/ref/exportgraphics.html>

Documentation on the saveas() function: <https://www.mathworks.com/help/matlab/ref/saveas.html>

**NOTE:** If you ctrl+f (command+f) for “format” or “vector” in each function documentation you can find what kinds of vector/raster formats each function supports. They do not all support the same formats! (e.g., print() & saveas() support \*.svg formats, but exportgraphics() does not).