Math 291
Week 10 Lab

Instructions: Use LaTeX to typeset a document containing each component described below. Turn in your lab by emailing it to jamesju@mnstate.edu or by uploading it to the appropriate assignment folder on the course D2L page. You should email both your raw TeX (.tex) file and your compiled document (in .pdf form). **Make sure that your name appears somewhere in your file name**. You will be graded on both your raw TeX code and the accuracy of your compiled document. This lab is due by 5:00pm on Friday, April 7th.

1. Include a Title Block and a sensible page layout. Make sure to load the "pst-func", "pst-3dplot", and "graphicx" packages to the preamble or your document.

2. Use the "psplot" command (along with related commands) to produce a nice graph of the function $f(x) = \frac{1}{5}x^5 - \frac{17}{5}x^3 + \frac{16}{5}x + 1$. Make sure to show all of the important features of this graph (intercepts, turning points, etc.), clip your graph, and place it on axes with a reasonable scale.

3. Make **your own** drawing using a combination of "pscircle", "psellipse", "parabola", "psline" along with color and arrow options.

4. Make at least one drawing of your own design using postscript 3D graphics commands.

5. Make at least one 2D parametric plot and at least one 3D parametric plot (your calculus textbook should have some interesting examples you can use).

6. Pick your favorite function (**other than** $y = \sqrt{x}$ or any scalar multiple of this function) and make a diagram that represents finding the volume of the related solid of revolution using the washer method (feel free to refer to your calc textbook or old calc labs). You may need to do a little reading on your own about how the psVolume command expects you to input functions.