CMPT-102 (Scientific Computing)

Homework 1

Date due: January 25, 2012

This assignment is on simple plotting. The following problems can be solved using the command line instructions. However, you are asked to write a script for each of the following problems. Extra marks will be given for well displayed plots.

1. Use the function **plot()** to draw a polygonal chain through the points $(1,1),(1,2),(\pi,3),(2,5)$.

2. Draw the rectangle with the vertices $(1,1),(5,1),(5,4),(1,4)$. Make sure that all the sides of the rectangle are displayed.

3. Graph the function $f(x)=\frac{sin(x)}{1+x^2}$ on the interval $[0,2\pi]$.

   (a) Use the commands

   ```
   >> x=linspace(0,2*pi,16);
   >> y=sin(x)./(1+x.^2);
   >> plot(x,y)
   ```

   Use appropriate labels.

   (b) Make the plot smoother by sampling large number of points.

4. This has two parts

   (a) Draw the circle with the center at $(1,2)$ and radius 2. To make the circle looks like a circle, instead of an ellipse, use the command

   ```
   >> axis equal
   ```

   (b) Use the command

   ```
   >> hold on
   ```

   and then draw an octagon in this circle.