Math 206 Project 3
First Submission due Sunday 23 February 2014 at 6:00pm
Second Submission due Monday 24 February 2014 at 6:00pm
Third Submission due Wednesday 26 February 2014 at 6:00pm

What to Submit:

For this project you will need to create and submit three function m-files.

Grading Method:

For grading we will run a variety of data through your function m-files. Each m-file will earn credit based up how many correct values it returns. For example if we test it on 10 sets of input and it returns 7 correct values it would earn 70%.

Important Note:

Your functions should print absolutely nothing and should only return the value requested. The returned value will be displayed automatically as a result of being returned from the function.

Sample Date:

See the sample data (also in this directory) to see some sample input and output.

The Function M-Files:

1. `mybetween(a,b,p)` which takes three inputs: [30 pts]

   `a`: A real number.

   `b`: A real number.

   `p`: A real number assumed to be in $[0, 100]$.

   Note: You may not assume $a < b$.
   Returns: If $a < b$ return the real number which is $p\%$ of the way from a to b. If $b < a$ return the real number which is $p\%$ of the way from b to a. If $a = b$ return 0.

2. `mynewton(f,a,n)` which takes three inputs: [35 pts]

   `f`: A function handle for a function of `x`.

   `a`: A real number.

   `n`: A positive integer.

   Does n iterations (with a `for` loop) of the Newton-Raphson method with starting approximation $x = a$.
   Note: The initial guess `a` does not count as an iteration.
   Returns: The n^{th} approximation.

3. `mylhopital(f,g,a)` which takes two inputs: [35 pts]

   `f`: A function handle.

   `g`: A function handle.

   `a`: A real number.

   Note: You may assume that repeated applications of L'hôpital's Rule will correctly calculate $\lim_{x \to a} \frac{f(x)}{g(x)}$ and at each stage (until the end) the value will be $\frac{0}{0}$.
   Does: Calculates $\lim_{x \to a} \frac{f(x)}{g(x)}$ using repeated applications of L'hôpital's Rule as follows: While $f(a) = g(a) = 0$ replace f by f' and g by g'.
   Returns: The final value of the limit.