1.) Use Newton’s Method to estimate the root of $7x^3 + x - 5 = 0$ to four decimal places.

2.) Use Newton’s Method to estimate the largest root of $x^3 + 6x^2 + 9x + 1 = 0$ to four decimal places.

3.) Use Newton’s Method to estimate the root of $\cos x = 2x$ to four decimal places.

4.) Use Newton’s Method to estimate $10^{1/3}$ to four decimal places.
   HINT: Solve $x^3 - 10 = 0$.

5.) Consider the graph of $f(x) = x^{1/3}$. Clearly, the root of $f(x) = 0$ is $x = 0$. Set up Newton’s Method with $x_1 = 1$ and discover what happens when you compute $x_2, x_3, x_4, \text{ and } x_5$. What do you conjecture?

6.) For this problem assume that $D\ln x = \frac{1}{x}$. Consider the function $f(x) = \frac{1 + \ln x}{x}$. Set up Newton’s Method to estimate the root of $f(x) = 0$.

   a.) Let $x_1 = 1.2$ and discover what happens when you compute $x_2, x_3, \text{ and } x_4$.

   b.) Let $x_1 = 0.5$ and discover what happens when you compute $x_2, x_3, \text{ and } x_4$.

   c.) Sketch a graph of $f$. What do you conjecture based on this graph and your work in a.) and b.?)