**Math 151A**
**HW #3: Due on Friday, April 27**

**2.3, #2** Let $f(x) = -x^3 - \cos x$ and $p_0 = -1$. Use Newton's method to find $p_2$. Could $p_0 = 0$ be used ?

**2.3, #4(a)** Let $f(x) = -x^3 - \cos x$. With $p_0 = -1$ and $p_1 = 0$, find $p_3$ using the Secant method.

**2.3, #6(a)** Use Newton's method to find solutions accurate to within $10^{-5}$ for the problem:

$$e^x + 2^{-x} + 2\cos x - 6 = 0 \quad \text{for} \quad 1 \leq x \leq 2.$$

Repeat this problem using the Secant method.

**2.3, #13** Use Newton's method to approximate, to within $10^{-4}$, the value of $x$ that produces the point on the graph of $y = x^2$ that is closest to $(1, 0)$ (hint: minimize $d(x)^2$, where $d(x)$ represents the distance from $(x, x^2)$ to $(1, 0)$).

**2.3, #14** Use Netwon's method to approximate, to within $10^{-4}$, the value of $x$ that produces the point on the graph of $y = \frac{1}{x}$ that is closest to $(2, 1)$.