

Math 455: Homework 2 (due August 26, 2014)

Let $x_0 = a$ and $x_1 = b$, find $p(x)$ that interpolates f and f' at x_i , $i = 0, 1$.

Hint: Write

$$p(x) = f(a)\psi_0(x) + f(b)\psi_1(x) + f'(a)\chi_0(x) + f'(b)\chi_1(x).$$

We will get

$$\chi_i(x) = [\ell_i(x)]^2(x - x_i), \quad \psi_i(x) = [\ell_i(x)]^2(c_i x - d_i).$$

Solve for c_i and d_i for $i = 0, 1$.