Homework 7 – Math 407

1. Section 5.1: Exercises 4(a), 6(a), 10, 13
2. Section 5.2: Exercises 1(c), 4(a). Do only $m = 4$ panels (skip $m = 1$ and $m = 2$). Also derive bounds on the error, and check that the actual error lies within the bounds.
3. Section 5.2: Exercises 9, 11, 12
4. Section 5.2: Computer Problem 1(a)
5. Section 5.5: Exercises 1(d), 2(d). (You can look up the values of x_i and c_i in Table 5.1; you don't need to derive them by hand.)
6. Find a polynomial $p(x)$ of degree 2 satisfying $p(1) = 1$, $\int_{-1}^{1} p(x)(1 - x^2)\,dx = 0$, and $\int_{-1}^{1} xp(x)(1 - x^2)\,dx = 0$.
7. Section 6.1: Exercises 3(b,f), 6(b,f), 10