1. Write the Lagrange interpolating polynomial of order 2 for the data $x_0 = -1, f(x_0) = 1, x_1 = 0, f(x_1) = 0, x_2 = 1, f(x_2) = 1$.

2. Write the equations that determine the natural cubic interpolating spline for the data (of problem 1) $x_0 = -1, f(x_0) = 1, x_1 = 0, f(x_1) = 0, x_2 = 1, f(x_2) = 1$. (you do not have to solve these equations).

3. * Do problem 5 on p. 422 of your textbook (hint write a Taylor polynomial for $f$ multiply it by the weight $\sqrt{x}$ and integrate).

* Math 6630.