

## HW 6, due Wednesday, Nov. 22

Please turn in your papers to me at the beginning of the class on Wednesday.

Solve problem 9 on page 393. Ignore the given hint. Get a better answer using the bound

$$|f(x) - S(x)| \leq \frac{M_2}{8}h^2 \text{ for every } x \text{ in } [a, b].$$

Redo the problem for the spline  $S$  of degree 3 for which we have

$$|f(x) - S(x)| \leq \frac{M_4}{16} \left(\frac{h}{3}\right)^2 \text{ for every } x \text{ in } [a, b].$$

Solve problem 3 on page 413. **Hint:** First find  $z_0$ ,  $z_1$ , and  $z_2$ .

Solve problem 7(b) on page 414 by verifying all conditions in the definition of the natural cubic spline. List those which are not satisfied as well as those which are satisfied.

Solve problem 14 on page 415

Solve problem 21 on page 415.

Computer problem. Solve problem 4 on page 418. Note that  $S$  is the natural cubic spline. Use double precision and procedures `Spline3Coef`, `Spline3Eval` on pages 404, 405. Print  $x$  and  $|f(x) - S(x)|$  for 61, rather than 101, equally spaced points  $x$  in  $[0, 5]$ . Turn in: code, results, discussion.